SERVICE MANUAL

Customer **Model:**

PDP4206EM

Safety Precaution
Technical Specifications
Block Diagram
Circuit Diagram
Basic Operations & Circuit Description
Main IC Specifications
Product Specification of PDP Module
Trouble Shooting Manual of PDP Module
Spare Part List
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Software Upgrade

This manual is the latest at the time of printing, and does not include the modification which may be made after the printing, by the constant improvement of product.

Safety Precaution

CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN

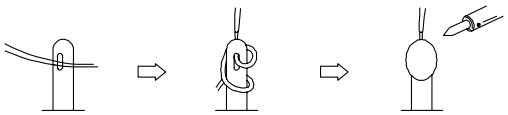
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL ONLY.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclo sure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

PRECAUTIONS DURING SERVICING

1. In addition to safety, other parts and assemblies are specified for conformance with such regulations as those applying to spurious radiation. These must also be replaced only with specified replacements.
   Examples: RF converters, tuner units, antenna selection switches, RF cables, noise-blocking capacitors, noise-blocking filters, etc.
2. Use specified internal Wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads
3. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulating Tape
   2) PVC tubing
   3) Spacers (insulating barriers)
   4) Insulating sheets for transistors
   5) Plastic screws for fixing micro switches
4. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.), wrap ends of wires securely about the terminals before soldering.



5. Make sure that wires do not contact heat generating parts (heat sinks, oxide metal film resistors, fusible resistors, etc.)
6. Check if replaced wires do not contact sharply edged or pointed parts.
7. Make sure that foreign objects (screws, solder droplets, etc.) do not remain inside the set.

MAKE YOUR CONTRIBUTION TO PROTECT THE ENVIRONMENT

Used batteries with the ISO symbol for recycling as well as small accumulators (rechargeable batteries), mini-batteries (cells) and starter batteries should not be thrown into the garbage can.

Please leave them at an appropriate depot.

WARNING:

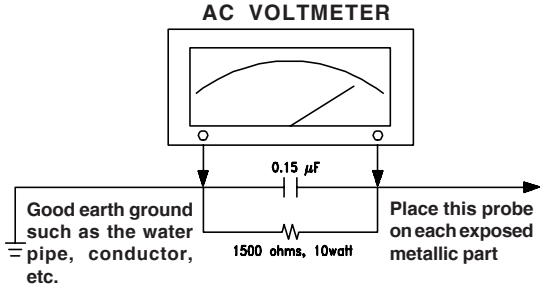
Before servicing this TV receiver, read the SAFETY INSTRUCTION and PRODUCT SAFETY NOTICE.

SAFETY INSTRUCTION

The service should not be attempted by anyone unfamiliar with the necessary instructions on this apparatus. The following are the necessary instructions to be observed before servicing.

1. An isolation transformer should be connected in the power line between the receiver and the AC line when a service is performed on the primary of the converter transformer of the set.
2. Comply with all caution and safety related provided on the back of the cabinet, inside the cabinet, on the chassis or picture tube.
3. To avoid a shock hazard, always discharge the picture tube's anode to the chassis ground before removing the anode cap.
4. Completely discharge the high potential voltage of the picture tube before handling. The picture tube is a vacuum and if broken, the glass will explode.

5. When replacing a MAIN PCB in the cabinet, always be certain that all protective are installed properly such as control knobs, adjustment covers or shields, barriers, isolation resistor networks etc.
6. When servicing is required, observe the original lead dressing. Extra precaution should be given to assure correct lead dressing in the high voltage area.
7. Keep wires away from high voltage or high tempera ture components.
8. Before returning the set to the customer, always perform an AC leakage current check on the exposed metallic parts of the cabinet, such as antennas, terminals, screwheads,metal overlay, control shafts, etc., to be sure the set is safe to operate without danger of electrical shock. Plug the AC line cord directly to the AC outlet (do not use a line isolation transformer during this check). Use an AC voltmeter having 5K ohms volt sensitivity or more in the following manner.
   Connect a 1.5K ohm 10 watt resistor paralleled by a 0.15μF AC type capacitor, between a good earth ground (water pipe, conductor etc.,) and the exposed metallic parts, one at a time. Measure the AC voltage across the combination of the 1.5K ohm resistor and 0.15 uF capacitor. Reverse the AC plug at the AC outlet and repeat the AC voltage measurements for each exposed metallic part.
   The measured voltage must not exceed 0.3V RMS.
   This corresponds to 0.5mA AC. Any value exceeding this limit constitutes a potential shock hazard and must be corrected immediately.
   The resistance measurement should be done between accessible exposed metal parts and power cord plug prongs with the power switch "ON". The resistance should be more than 6M ohms.


AC VOLTMETER
0.15 μF
Good earth ground such as the water pipe, conductor, etc.
1500 ohms, 10watt
Place this probe on each exposed metallic part

AC Leakage Current Check

PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in this apparatus have special safety-related characteristics.

These characteristics are offer passed unnoticed by visual spection and the protection afforded by them cannot necessarily be obtained by using replacement components rates for a higher voltage, wattage, etc.

The replacement parts which have these special safety characteristics are identified by ⚠ marks on the schematic diagram and on the parts list.

Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts which do not have the same safety characteristics as specified in the parts list may create shock, fire, or other hazards.

9. Must be sure that the ground wire of the AC inlet is connected with the ground of the apparatus properly.

Technical Specifications	MODEL : ***PDP4206EM*** **42" Plasma Monitor**			
DATE FIRST ISSUED	**ISSUE** **1**	**RAISED BY**	**CHECKED BY**	**NUMBER OF PAGES** **9**

REVISIONS

ISSUED	DATE	DESCRIPTION	RAISED BY :

SPECIFICATION AGREED :	SIGNATURE	DATE
R & D DEPARTMENT	.....	.....
COMMERCIAL DEPARTMENT	.....	.....
PRODUCTION DEPARTMENT	.....	.....
Q/A DEPARTMENT	.....	.....
CUSTOMER	.....	.....
	.....	.....

SPECIFICATION APPROVED : SIGNATURE : DATE :

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NOTE :	Only documents stamped "Controlled Document" to be used for manufacture of production parts.

1. Standard Test Conditions

All tests shall be performed under the following conditions, unless otherwise specified.

1.1 Ambient light : 150ux (When measuring I_B, the ambient luminance $\leqq 0.1Cd/m^2$)

1.2 Viewing distance : 50cm in front of PDP

1.3 Warm up time : 30 minutes

1.4 PDP Panel facing : no restricted

1.5 Measuring Equipment : PC, Chroma 2225 signal generator (with Chroma digital additional card) or equivalent, Minolta CA100 photometer

1.6 Magnetic field : no restricted

1.7 Control settings : Brightness, Contrast, Tint, Color set at Center(50)

1.8 Power input : 110~120Vac

1.9 Ambient temperature : 20°C ± 5°C (68°F ± 9°F)

1.10 Display mode : 31.5KHz/60Hz (Resolution 852 x 480)

1.11 Other conditions :

1.11.1 With image sticking protection of PDP module, the luminance will descend by time on a same still screen and rapidly go down in 5 minutes. When measuring the color tracking and luminance of a same still screen, be sure to accomplish the measurement in one minute to ensure its accuracy.

1.11.2 Due to the structure of PDP, the extra-high-bright same screen should not hold over 5 minutes for fear of branding on the panel.

ELECTRICAL CHARACTERISTICS

2. Power Input

2.1	Voltage	:	110 ~120VAC
2.2	Input Current	:	3.5 / 1.5A
2.3	Maximum Inrush Current	:	<30 A (FOR AC110V ONLY)
	Test condition	:	Measured when switched off for at least 20 mins
2.4	Frequency	:	50Hz to 60Hz(±3Hz)
2.5	Power Consumption	:	≤ 330W
	Test condition	:	full white display with maximum brightness and contrast
2.6	Power Factor	:	Meets IEC1000-3-2
2.7	Withstanding voltage	:	1.5kVac or 2.2kVdc for 1 sec

3. Display

3.1	Screen Size	:	42” Plasma monitor
3.2	Aspect Ratio	:	16:9
3.3	Pixel Resolution	:	852x480
3.4	Peak Brightness	:	1000 cd/m² (Panel module without filter)
3.5	Contrast Ratio (Dark room)	:	3000:1 (Panel module without filter)
3.6	Viewing Angle	:	Over 160°
3.7	OSD language	:	English

4. Signal

4.1 AV & Graphic input

4.1.1 Composite signal	:	CVBS
4.1.2 Y,C Signal	:	S-Video
4.1.3 Component signal	:	Y, Pb/Cb, Pr/Cr, HDTV compatible
4.1.4 Graphic I/P	:	Analog: D-sub 15pin detachable cable Digital: DVI
4.1.5 PnP compatibility	:	DDC 1.0
4.1.6 I/P frequency	:	f_H: 31.5kHz to 60kHz/f_V: 56.25Hz to 75Hz (640x480 recommended)

4.2 Audio input

Audio I/P(L/Rx5)	:	1 for DVI / D-Sub 1 for Y/ Pb/Pr 1 for Y/ Cb/Cr 1 for Video 1 for S-Video

4.3 Audio output

Audio O/P(L/Rx1)	:	1 for Line out

4.4 Other function	:	PIP, 16:9, 4:3, Zoom

5. Environment

5.1 Operating environment

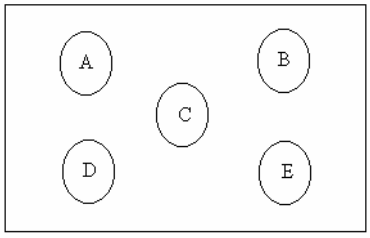
5.1.1 Temperature	:	5ºC ~ 33°C
5.1.2 Relative humidity:		20% ~ 85%(non-condensing)

5.2 Storage and Transport

5.2.1 Temperature	:	-20°C to 60°C(-4º to 140°F)
5.2.2 Relative humidity:		5% to 95%

6. Panel Characteristics

6.1 Type	:	LG V6
6.2 Size	:	42”, 1005mm(width)x597mm(height)x61mm(depth)±1 mm)
6.3 Aspect ratio	:	16:9
6.4 Viewing angle	:	Over 160°
6.5 Resolution	:	852x480
6.6 Weight	:	14.8kg ±0.5 kg (Net)
6.7 Color	:	16.77 million colors by combination of 8 bits R,G,B digital
6.8 Contrast	:	Average 60:1 (In a bright room with 150Lux at center) Typical 3000:1 (In a dark room 1/25 White Window pattern at center).
6.9 Peak brightness	:	Typical 1000cd/㎡ (1/25 White Window)
6.10 Color Coordinate Uniformity	:	Contrast; Brightness and Color control at normal setting
Test Pattern	:	Full white pattern



Average of point A,B,C,D and E +/- 0.01

6.11 Color temperature : Contrast at center (50); Brightness center (50); Color temperature set at Natural
x=0.285±0.02
y=0.293±0.02

6.12 Cell Defect Specifications
Subject to Panel supplier specification as appends.

7. Front Panel Control Button

7.1 SEL. UP/Down Button : Push the key to selecting the item on OSD menu

Volume Up/ Down Button : Push the key to increase the volume up or down. When selecting the adjusting item on OSD menu increase or decrease the data-bar.

Menu Button : Enter to the OSD menu.

Input Select Button : Push the key to select the input signals source.

7.2 Stand by Button : Switch on main power, or switch off to enter power Saving modes.

7.3 Main Power Switch : Turn on or off the unit.

8. OSD Function

8.1 Audio : Adjust or Select Volume; Bass; Treble; Balance; SRS; BBE; AVC; Int./Ext. Speaker.

8.2 Picture : Adjust or Select Brightness; Contrast; Sharpness; Scaling (Picture changes According to Fill or One to One.; DNR; Video Format; More options for Y/Pb/Pr and VGA (H. Position, V. Position Phase, Frequency)

8.3 OSD : Position; OSD H. Position; OSD V. Position; OSD Timeout; OSD Backgroud; Language.

8.4 Tools : Factory Reset; Source Scan; Blank Color; Turn Off Timer; Screen Saver; Saver Mode.

8.5 CC-V Chip : TV Channel Blocking; Movie Blocking; Change Blocking Password; Clear Password; CC Mode; CC Background.

9. Agency Approvals

Safety	UL60950
Emissions	FCC class B

10. Reliability

11.1 MTBF : 20,000 hours(Use moving picture signal at 25°C ambient)

11. Accessories : User manual x1, Remote control x1, Stand x1, Power cord x1, Battery x 2, Accessories box x 1.

12. Supportthe Signal Mode

The PDP can support the different from DVI or VGA Signal Mode in 24 kinds

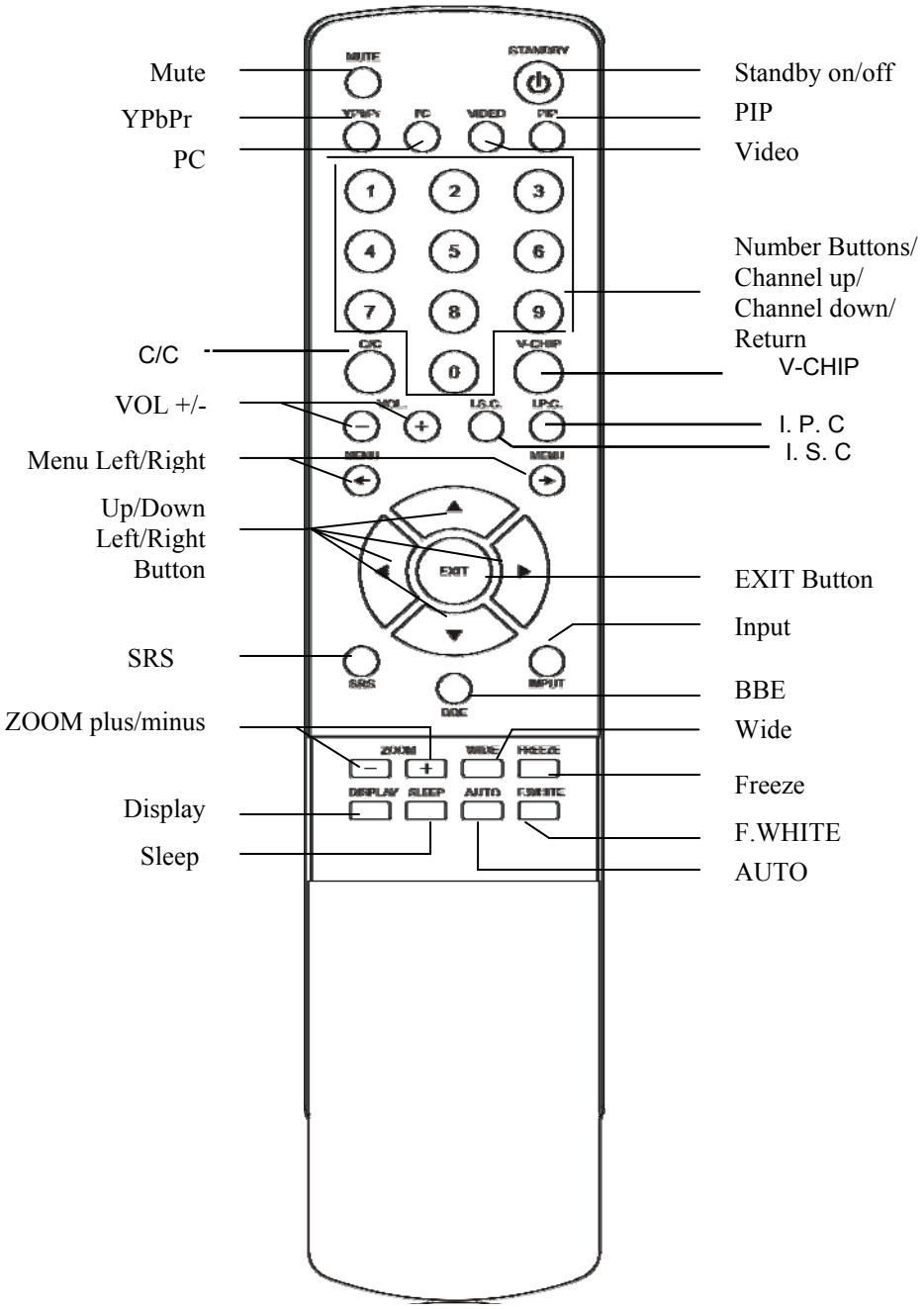
NO.	Resolution	Horizontal Frequency (KHz)	Vertical Frequency (Hz)	Dot Clock Frequency (MHz)
1#	640 x400	31.47	70.08	25.17
2#	640 x400	37.90	85.00	31.5
3	640 x480	31.50	60.00	25.18
4	640 x480	35.00	67.00	30.24
5	640 x480	37.50	75.00	31.50
6	640 x480	37.86	72.81	31.50
7#	640 x480	43.30	85.00	36.00
8	800 x600	35.16	56.25	36.00
9	800 x600	37.90	60.32	40.00
10	800 x600	46.90	75.00	49.50
11	800 x600	48.08	72.19	50.00
12	800 x600	53.70	85.00	56.25
13	832 x624	49.00	75.00	57.27
14	1024 x768	48.40	60.00	65.00
15	1024 x768	56.50	70.00	75.00
16	1024 x768	60.00	75.00	78.75
17	1024 x768	68.70	85.00	94.50
18*	1152x864	54.53	60.00	80.37
19	1152x864	67.52	75.02	108.03
20*	1152x864	63.86	70.02	94.51
21	1280x1024	63.37	60.01	111.51
22	1280 x960	75.02	75.02	126.00
23	1280 x960	60.02	60.02	108.04
24#	1280x720	44.96	59.95	74.19

Note: DVI could not support * of signal mode.
VGA could not support # of signal mode.

- Press “DISPLAY” button to confirm the input signal format.

Note: Some data will be updated in five seconds if you change them.

13. Remote Function+



PHYSICAL CHARACTERISTICS

14. Power Cord

Length : 1.8m nominal

Type : optional

15. Cabinet

15.1 Color : "Black" colour as defined by colour plaque reference number

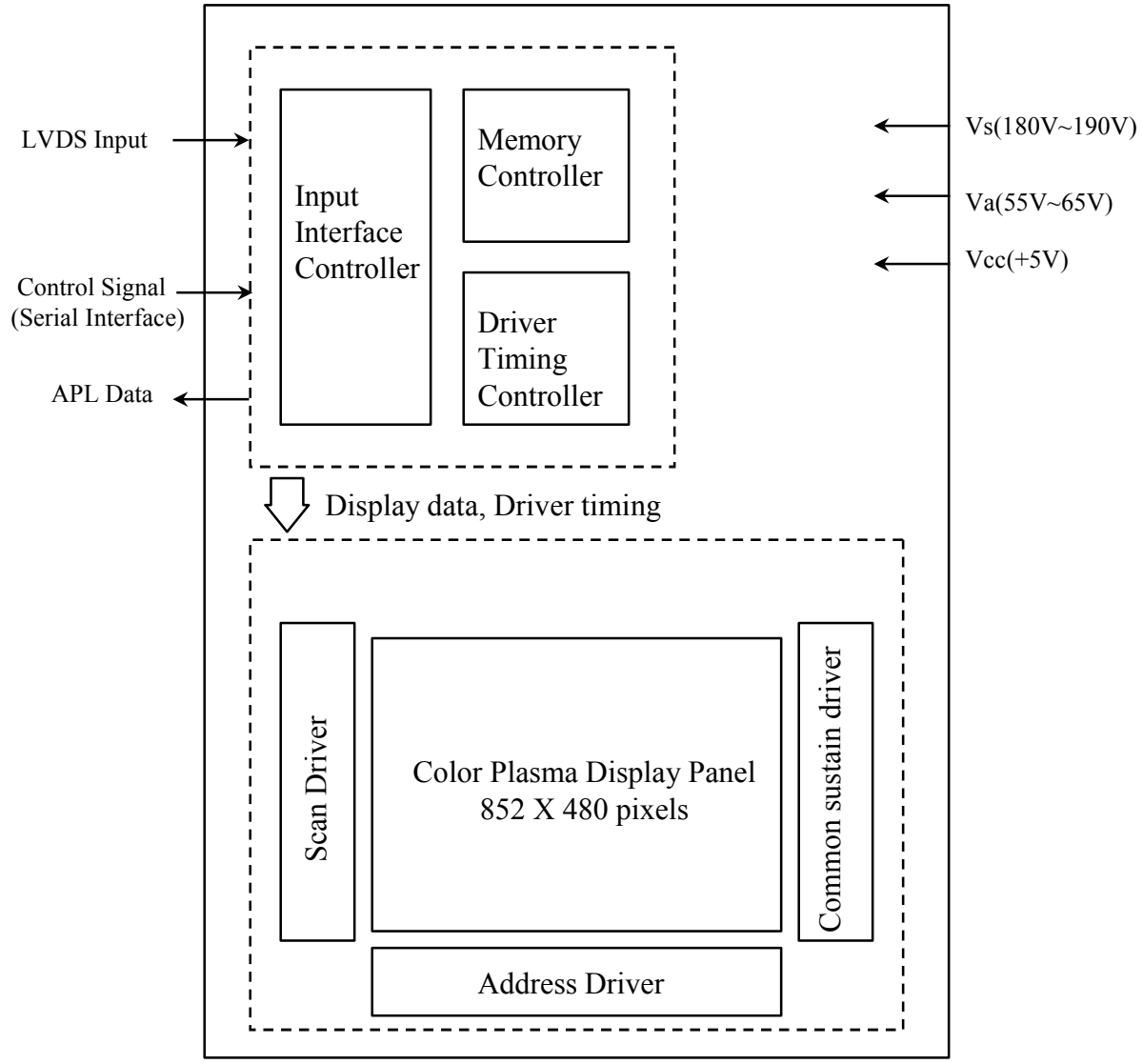
15.2 Weight (with stand)

Net weight : 84.5lbs (38.3kg)

15.3 Dimensions(with stand)

Width : 40-7/8 inches (1040mm)
Height : 27-1/4 inches (692mm)
Depth : 11-1/4 inches (286mm)

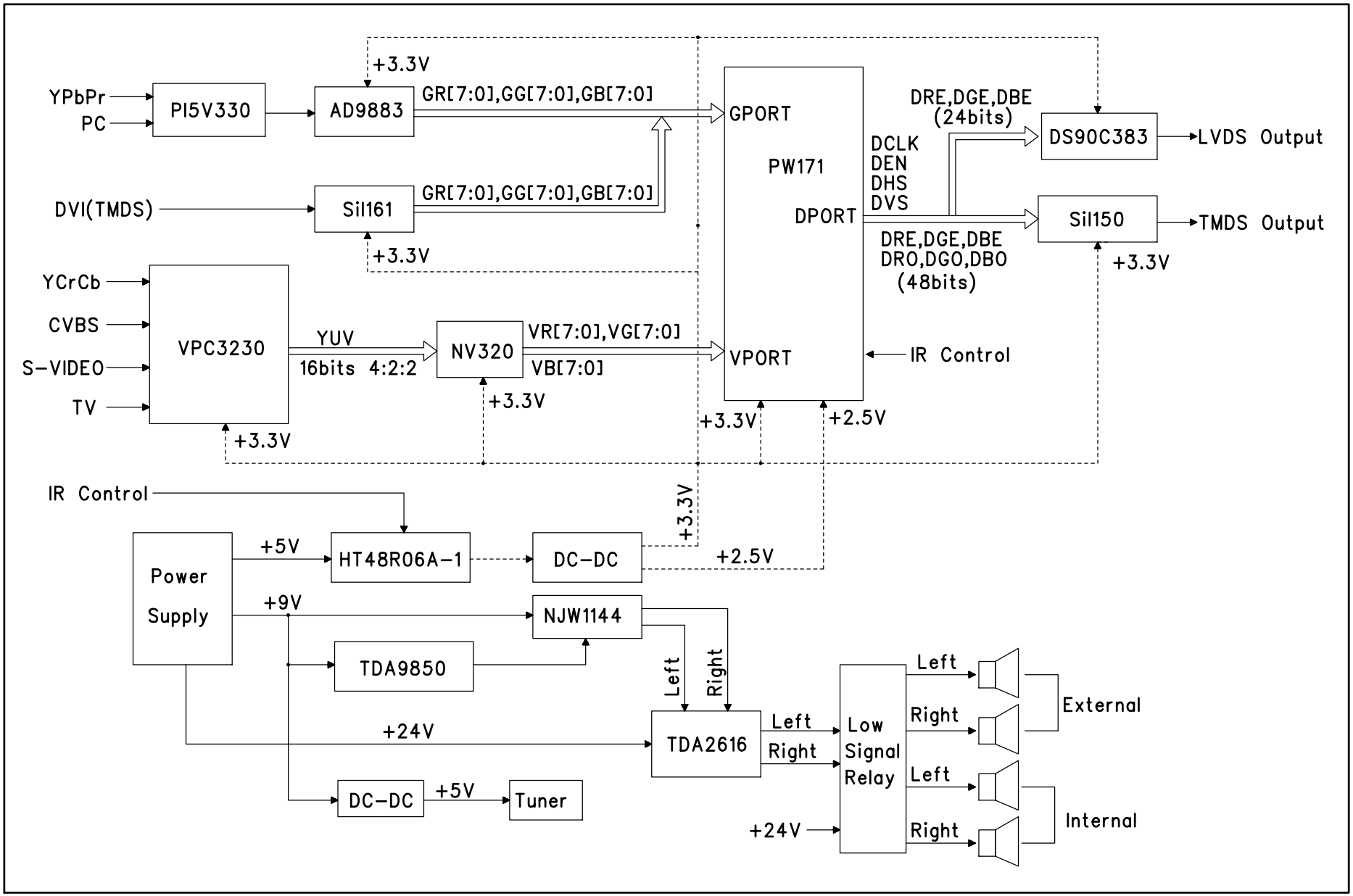
Block Diagram



☞ Applied Voltage level is specified at the time when Full-White pattern is displayed on the panel.

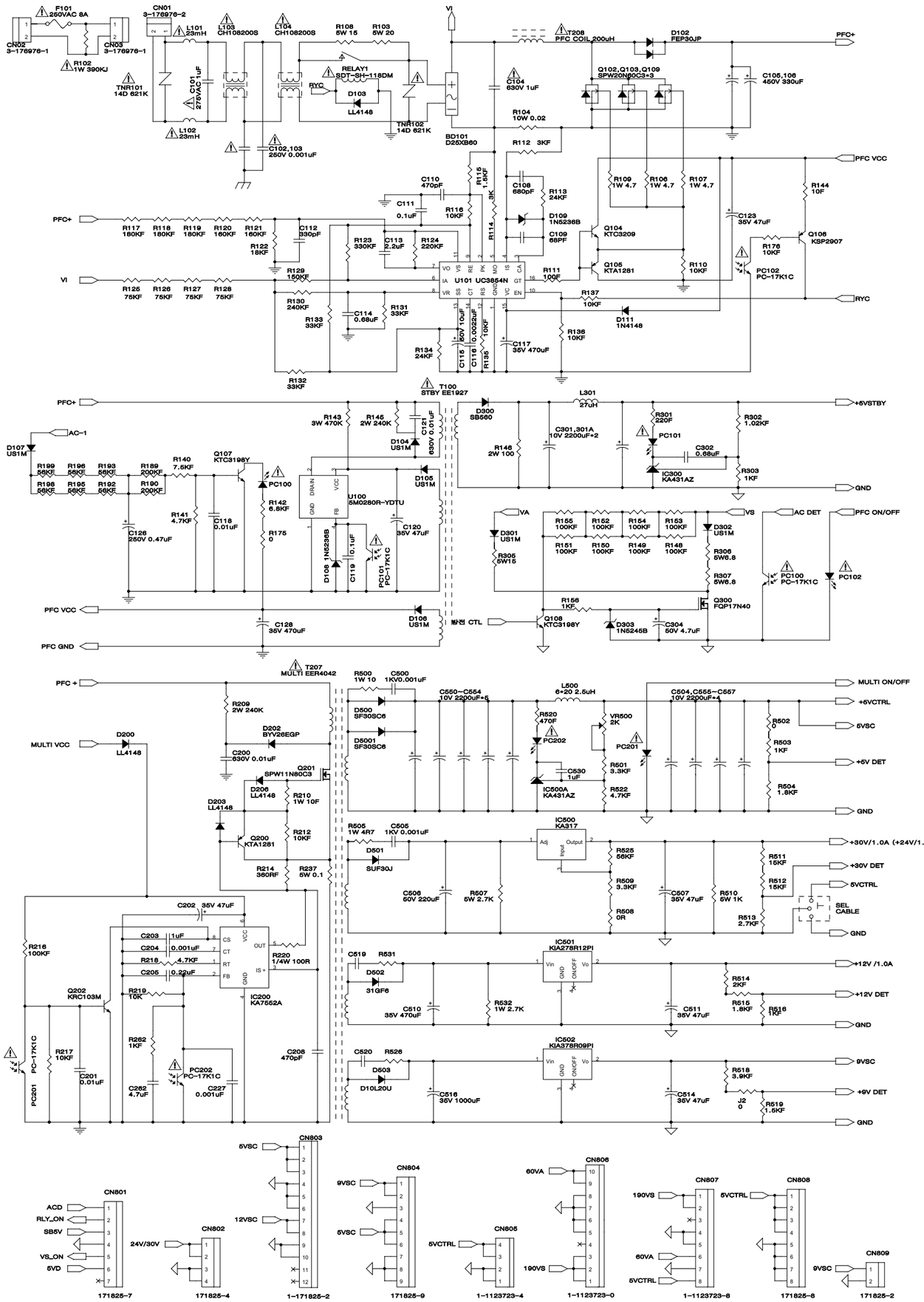
Block Diagram

MAIN/AUDIO BOARD

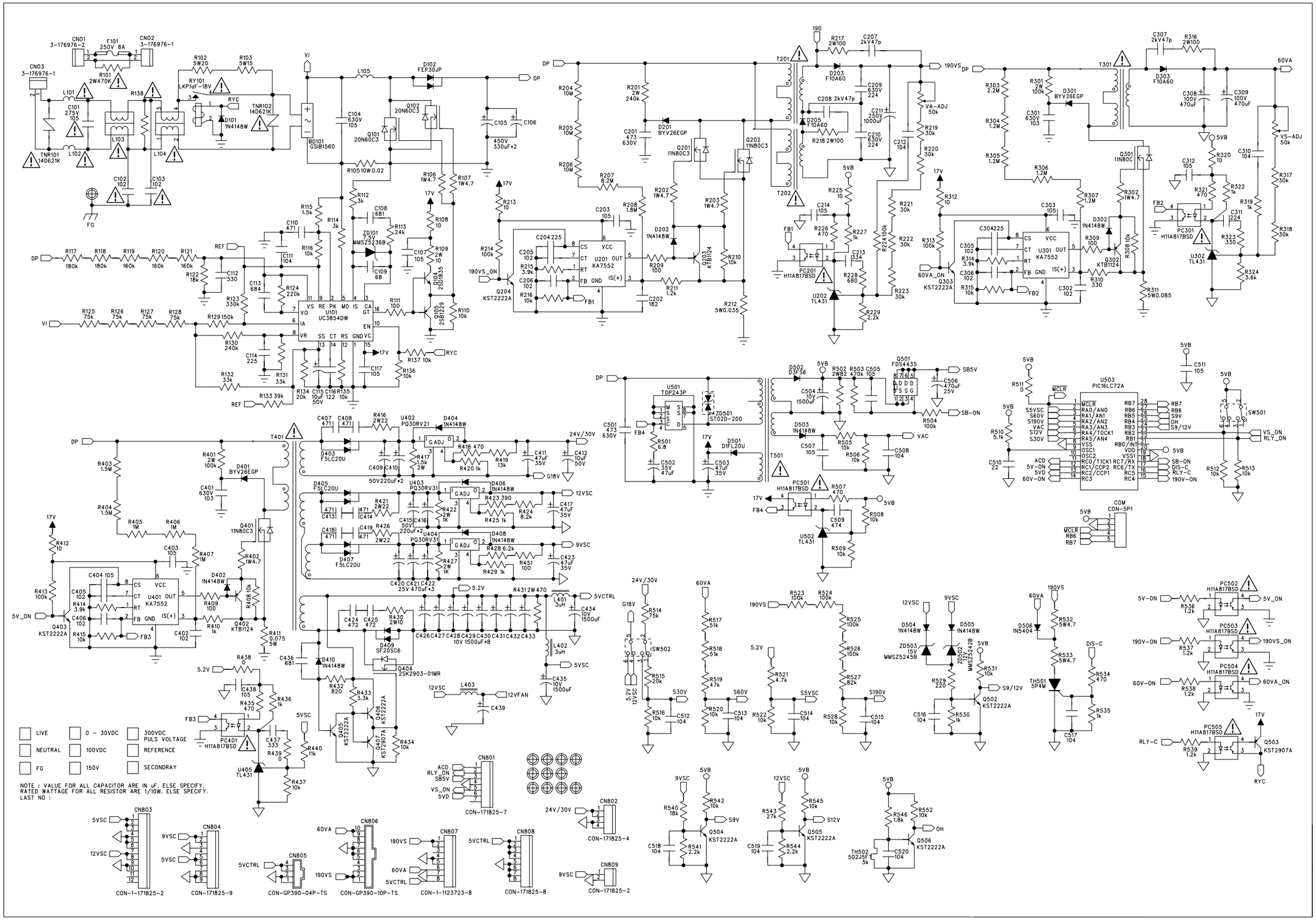


Circuit Diagram

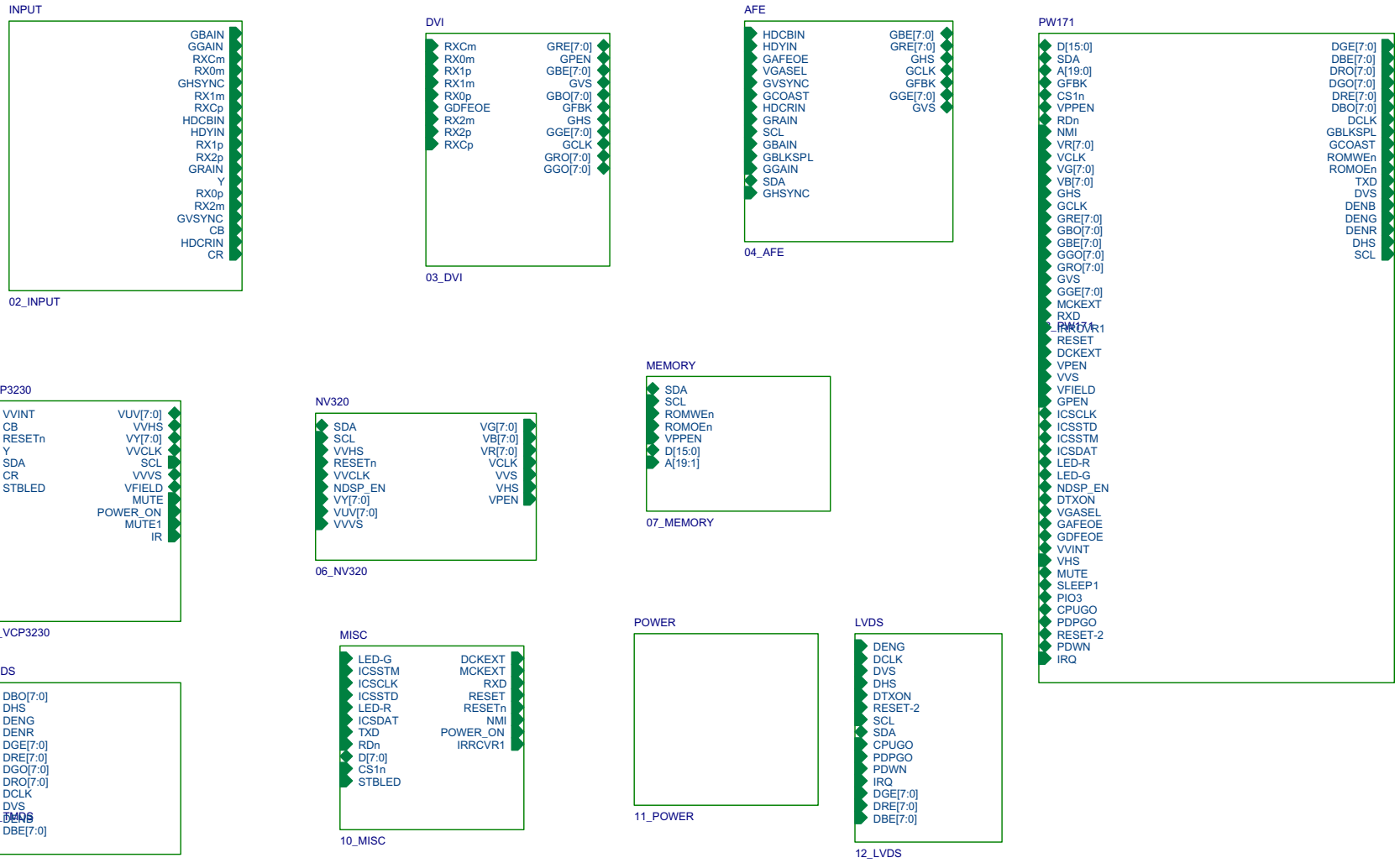
- Power supply board of PDP Module, DGP-420WXGA
- Power supply board of PDP Module, USP490M-42LP
- Main (Video) board
- Audio/Tuner board
- Keypad board
- Remote control receiver board
- External L/R Speakers board
- Remote control board

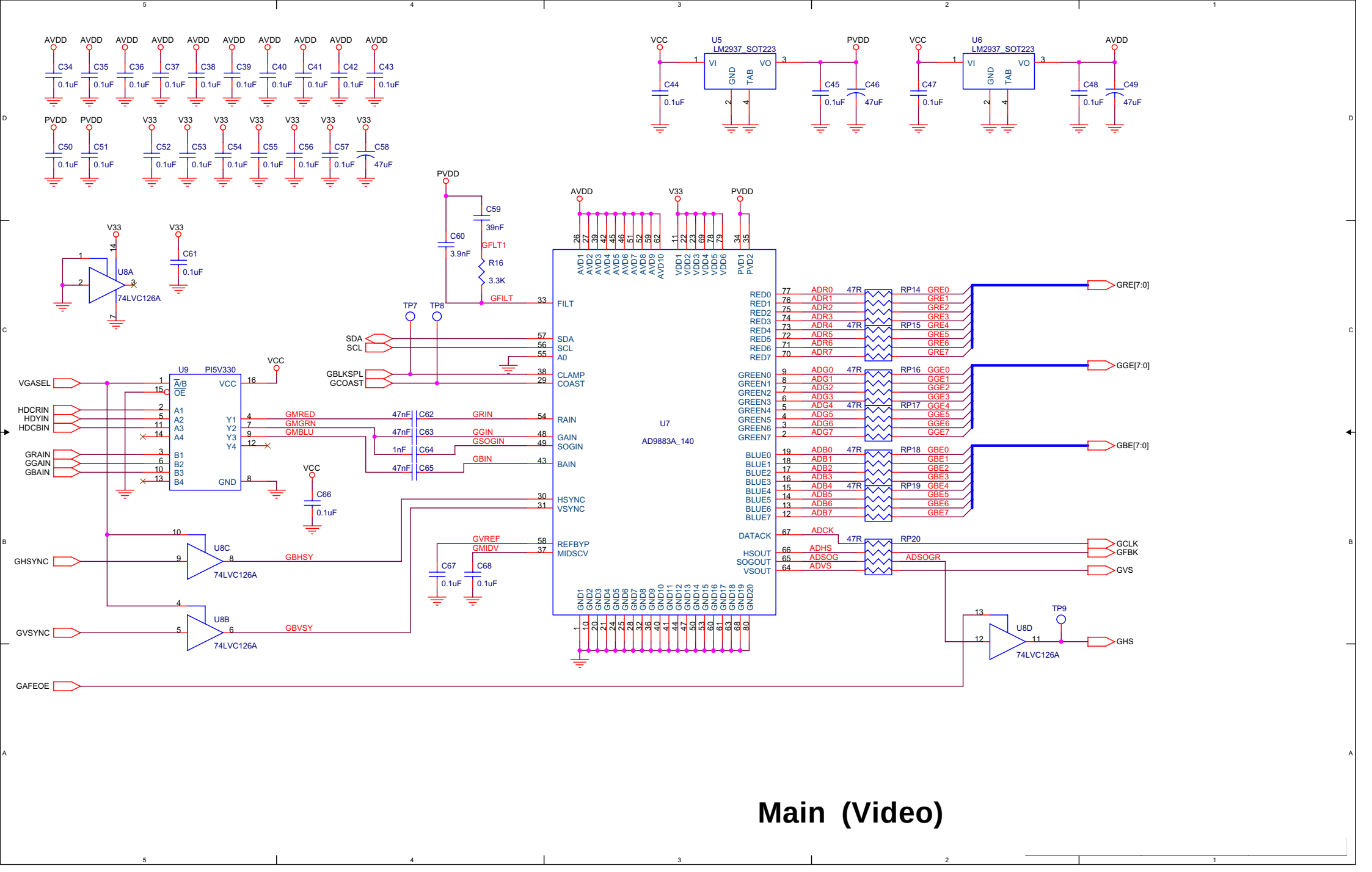

F101 250VAC 8A
CN02 3-176976-1
CN03 3-176976-1
R102 1W 390KJ
CN01 3-176976-2
L101 23mH
L103 CH108200S
L104 CH108200S
TNR101 14D 621K
C101 275VAC 1uF
L102 23mH
C102,103 250V 0.001uF
R108 5W 15
R103 5W 20
RELAY1 SDT-SH-118DM
RYC
D103 LL4148
TNR102 14D 621K
VI
T208 PFC COIL 200uH
D102 FEP30JP
PFC+
C104 630V 1uF
Q102,Q103,Q109 SPW20N60C3*3
C105,106 450V 330uF
R104 10W 0.02
BD101 D25XB60
R112 3KF
PFC VCC
C110 470pF
R115 15KF
R116 10KF
R114 3KF
C108 680pF
R113 24KF
D109 1N5238B
C109 68PF
R109 1W 4.7
R106 1W 4.7
R107 1W 4.7
Q104 KTC3209
Q105 KTA1281
R110 10KF
C123 35V 47uF
R144 10F
Q106 KSP2907
R176 10KF
PC102 PC-17K1C
C111 0.1uF
R117 180KF
R118 180KF
R119 180KF
R120 160KF
R121 160KF
C112 330pF
R122 18KF
R129 150KF
R123 330KF
C113 2.2uF
R124 220KF
R125 75KF
R126 75KF
R127 75KF
R128 75KF
U101 UC3854N
VO VS RE PK MO IS
IA VR SS CT RS GND VC EN GT CA
R130 240KF
R133 33KF
C114 0.68uF
R131 33KF
R132 33KF
C115 50V 10uF
C116 0.0022uF
R135 10KF
C117 35V 470uF
R134 24KF
R136 10KF
R111 100F
R137 10KF
D111 1N4148
RYC
T100 STBY EE1927
PFC+
D300 SB560
L301 27uH
+5VSTBY
R143 3W 470K
R145 2W 240K
C121 630V 0.01uF
D104 US1M
C301,301A 10V 2200uF*2
R146 2W 100
R301 220F
PC101
C302 0.08uF
IC300 KA431AZ
R302 1.02KF
R303 1KF
GND
AC-1
D107 US1M
R199 56KF
R196 56KF
R193 56KF
R189 200KF
R198 56KF
R195 56KF
R192 56KF
R190 200KF
R140 7.5KF
Q107 KTC3198Y
PC100
U100 5M0280R-YDTU
DRAIN VCC GND FB
D105 US1M
R142 6.8KF
R141 4.7KF
C118 0.01uF
R175 0
C126 250V 0.47uF
C120 35V 47uF
D108 1N6236B
C119 0.1uF
PC101 PC-17K1C
D106 US1M
C128 35V 470uF
PFC VCC
PFC GND
VA
VS
AC DET
PFC ON/OFF
D301 US1M
R305 5W15
R155 100KF
R152 100KF
R154 100KF
R153 100KF
R151 100KF
R150 100KF
R149 100KF
R148 100KF
D302 US1M
R306 5W6.8
R307 5W6.8
PC100 PC-17K1C
PC102
R156 1KF
Q108 KTC3198Y
D303 1N5245B
C304 50V 4.7uF
Q300 FQP17N40
T207 MULTI EER4042
PFC +
MULTI VCC
D200 LL4148
R209 2W 240K
D202 BYV26EGP
C200 630V 0.01uF
Q201 SPW11N80C3
D206 LL4148
R210 1W 10F
D203 LL4148
Q200 KTA1281
R212 10KF
R214 360RF
R237 5W 0.1
R500 1W 10
C500 1KV0.001uF
D500 SF30SC6
D5001 SF30SC6
C550~C554 10V 2200uF*5
L500 6+20 2.5uH
R520 470F
PC202
IC500A KA431AZ
C530 1uF
VR500 2K
PC201
R501 3.3KF
R522 4.7KF
C504,C555~C557 10V 2200uF*4
R502 0
R503 1KF
R504 1.8KF
MULTI ON/OFF
+5VCTRL
5VSC
+5V DET
GND
R505 1W 4R7
C505 1KV 0.001uF
D501 SUF30J
IC500 KA317
Adj Input Output
+30V/1.0A (+24V/1.25A)
C506 50V 220uF
R507 5W 2.7K
R525 56KF
R509 3.3KF
R508 0R
C507 35V 47uF
R510 5W 1K
R511 15KF
R512 15KF
R513 2.7KF
+30V DET
5VCTRL
SEL CABLE
GND
C202 35V 47uF
R216 100KF
C203 1uF
C204 0.001uF
R218 4.7KF
C206 0.22uF
IC200 KA7552A
CS CT RT FB VCC OUT GND IS+
R220 1/4W 100R
Q202 KRC103M
R219 10K
PC201 PC-17K1C
R217 10KF
C201 0.01uF
R262 1KF
PC202 PC-17K1C
C262 4.7uF
C227 0.001uF
C208 470pF
C519 R531
D502 31GF6
IC501 KIA278R12PI
Vin GND ON/OFF Vo
+12V /1.0A
C610 35V 470uF
R532 1W 2.7K
C511 35V 47uF
R514 2KF
R515 1.8KF
R516 1KF
+12V DET
GND
C520 R526
D503 D10L20U
IC502 KIA378R09PI
9VSC
C516 35V 1000uF
C514 35V 47uF
R518 3.9KF
J2 0
R519 1.5KF
+9V DET
GND
CN801
ACD
RLY_ON
SB5V
VS_ON
5VD
171825-7
CN802
24V/30V
171825-4
CN803
5VSC
12VSC
1-171825-2
CN804
9VSC
5VSC
171825-9
CN805
5VCTRL
1-1123723-4
CN806
60VA
190VS
1-1123723-0
CN807
190VS
60VA
5VCTRL
1-1123723-8
CN808
5VCTRL
171825-8
CN809
9VSC
171825-2
T204,205 VS EER4042
PFC +
VA VCC
D204 LL4148
R221 2.2M
R222 2.2M
R223 2.2M
R224 2.2M
R225 1M
R226 2W 240K
D205 BYV26EGP
C206 630V 0.047uF
Q203,204 SPW11N80C3*2
R227 1W 4.7
R228 1W 4.7
D213 LL4148
Q206 KTA1281
R230 4.7KF
D600 FSF10A60
R600 1W4R7
C600 1KV 220pF
D601 FSF10A60
R603 1W4R7
C601 1KV 220pF
C222 630V 0.1uF
C221 630V 0.1uF
C602 250V 820uF
R609 300KF
R610 300KF
R611 300KF
R612 12KF
190VS
VS DET
GND
R232 1K
R231 5W 0.05
C220 35V 47uF
C209 1uF
C210 0.001uF
R235 4.7KF
C211 0.001uF
R236 10KF
R233 100KF
Q207 KRC103M
IC201 KA7552A
CS CT RT FB VCC OUT GND IS+
R243 1W 47R
C212 0.0047uF
R620 2W 100K
R602 2W 100K
R604 120KF
R606 270KF
R613 120KF
R627 120KF
R628 120KF
R607 130KF
R608 120KF
R601 5K
R615 16KF
PC204
Q702 KTC3207
D211 1N5234B
T206 VA EER4042
PFC +
VA VCC
D226 LL4148
R263 2W 240K
D208 BYV26EGP
C213 630V 0.01uF
Q209 SPW11N80C3
D209 LL4148
R229 1W 4.7F
Q208 KTA1281
R245 10KF
D700 FSF10A60
R700 1W 10
C700 1KV 100pF
C701,702,704 100V 330uF
R704 22KF
R705 20KF
R706 20KF
R707 2.7KF
60VA
VA DET
GND
R247 1.2K
R246 5W 0.2
C215 35V 47uF
C216 1uF
C217 0.001uF
R250 4.7KF
C218 0.047uF
R251 10KF
R248 100KF
Q210 KRC103M
IC202 KA7552A
CS CT RT FB VCC OUT GND IS+
R252 1W 100R
C219 0.01uF
R249 10KF
C214 0.01uF
PC205 PC-17K1C
R261 1KF
PC206 PC-17K1C
C261 4.7uF
C226 0.001uF
R715 45.3KF
R716 45.3KF
R720 45.3KF
R710 18KF
R701 18KF
R708 18KF
R702 33KF
R718 45.3KF
R717 45.3KF
R721 45.3KF
R712 18KF
R714 18KF
R719 18KF
R703 36KF
R709 36KF
R700 5K
R711 11KF
PC206
Q701 KTC3207
D212 1N5234B
PC205
VA ON/OFF
R400 1KF
LED401 RED
R401 1KF
R402 4.7KF
IC400 KIA7045AP
VCC GND OUT
LED400 GREEN
CRST400 4MHZ
Xin Xout GND
C400 50V 0.1uF
C401 50V 0.1uF
R421 10KF
C410 50V0.01uF
R422 10KF
C411 50V0.01uF
IC401 HMS87C1304A
RA3/AN3 RA2/AN2 RA1/AN1 RA0/ECI0 RC1 RC0 Vss RESET Xout Xin RD3 RD2 RD1 RD0 VDD AN0/AVref/RB0 BUZ/RB1 INT0/RB2 INT1/RB3 PWM0/COMP0/RB4 AN4/R4 AN5/R5 AN6/R6 AN8/R8
R418 1KF
R416 100F
C403 50V 0.68uF
C404 50V 0.1uF
C405 50V 0.1uF
C406 50V 0.1uF
C407 50V 0.1uF
C408 50V 0.1uF
C409 50V 0.1uF
R403 1KF
R404 1KF
R405 1KF
R406 1KF
R407 1KF
R408 1KF
R409 0KF
R411 330F
R410 330F
R423 1KF
R412 1KF
R414 0KF
R417 1KF
R419 1KF
R420 4.7KF
SW400 JSS 2209
+5VSTBY
GND
GND
VS DET
VA DET
+6V DET
+12V DET
+9V DET
+30V DET
PFC ON/OFF
VA,VS ON/OFF
AC DET
MULTI ON/OFF
ACD OUT
5VD OUT
VS ON
RLY ON
RY ON/OFF
HIC_MICOM

DGP-420WXGA

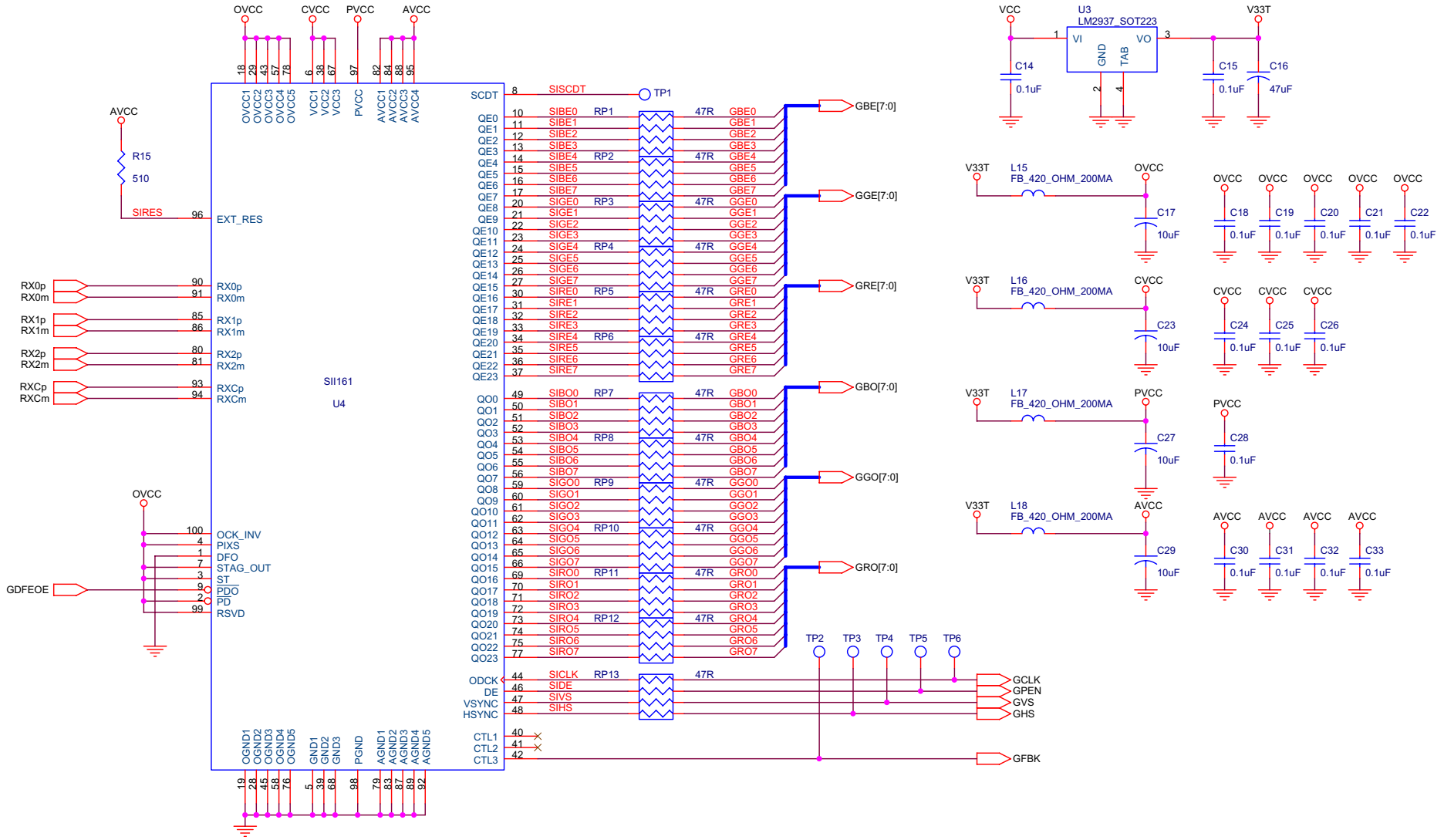


USP490M-42LP

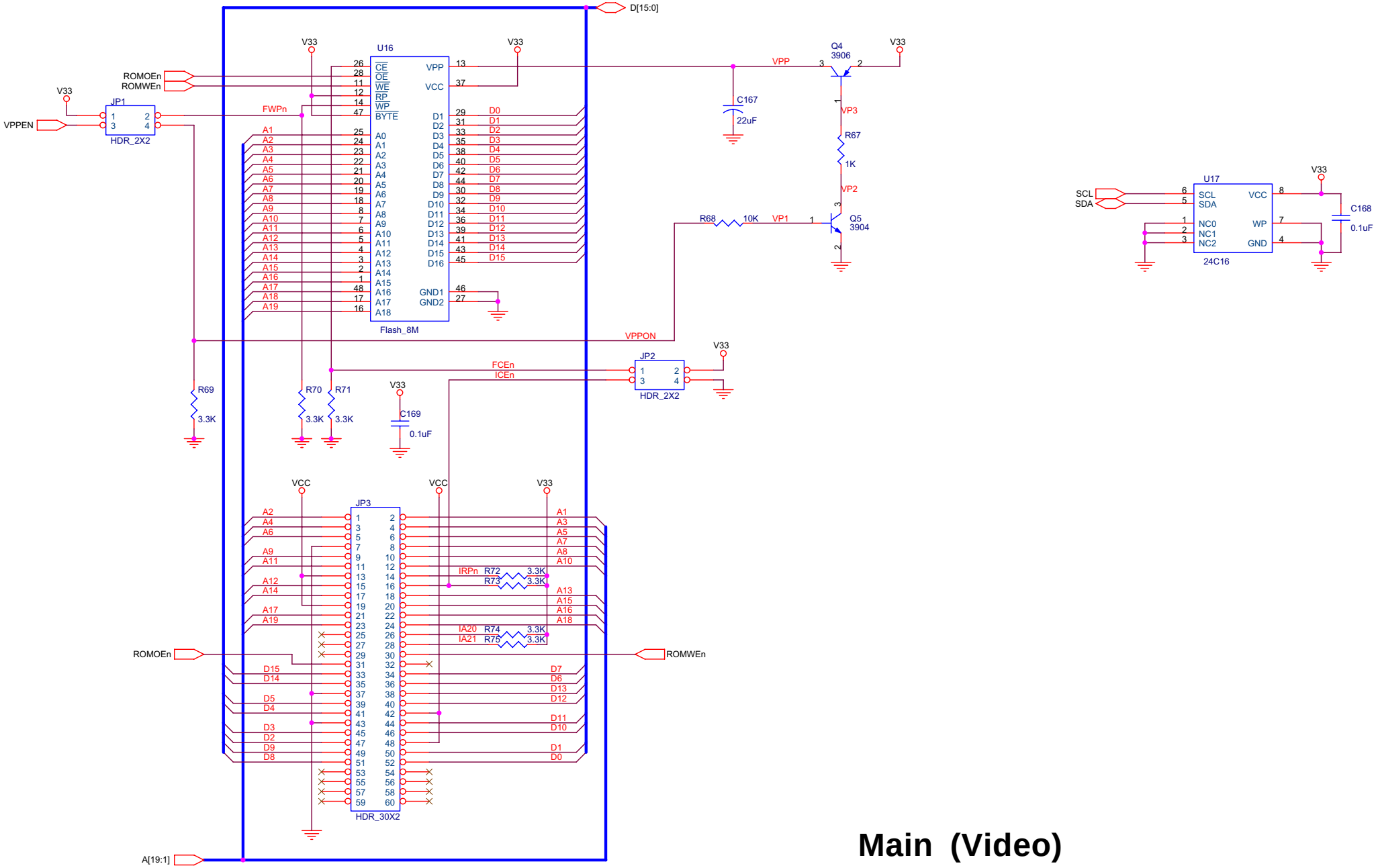

INPUT
GBAIN
GGAIN
RXCm
RX0m
GHSYNC
RX1m
RXCp
HDCBIN
HDYIN
RX1p
RX2p
GRAIN
Y
RX0p
RX2m
GVSYNC
CB
HDCRIN
CR
02_INPUT
DVI
RXCm
RX0m
RX1p
RX1m
RX0p
GDFEOE
RX2m
RX2p
RXCp
GRE[7:0]
GPEN
GBE[7:0]
GVS
GBO[7:0]
GFBK
GHS
GGE[7:0]
GCLK
GRO[7:0]
GGO[7:0]
03_DVI
AFE
HDCBIN
HDYIN
GAFEOE
VGASEL
GVSYNC
GCOAST
HDCRIN
GRAIN
SCL
GBAIN
GBLKSPL
GGAIN
SDA
GHSYNC
GBE[7:0]
GRE[7:0]
GHS
GCLK
GFBK
GGE[7:0]
GVS
04_AFE
PW171
D[15:0]
SDA
A[19:0]
GFBK
CS1n
VPPEN
RDn
NMI
VR[7:0]
VCLK
VG[7:0]
VB[7:0]
GHS
GCLK
GRE[7:0]
GBO[7:0]
GBE[7:0]
GGO[7:0]
GRO[7:0]
GVS
GGE[7:0]
MCKEXT
RXD
IRRCVR1
RESET
DCKEXT
VPEN
VVS
VFIELD
GPEN
ICSCLK
ICSSTD
ICSSTM
ICSDAT
LED-R
LED-G
NDSP_EN
DTXON
VGASEL
GAFEOE
GDFEOE
VVINT
VHS
MUTE
SLEEP1
PIO3
CPUGO
PDPGO
RESET-2
PDWN
IRQ
DGE[7:0]
DBE[7:0]
DRO[7:0]
DGO[7:0]
DRE[7:0]
DBO[7:0]
DCLK
GBLKSPL
GCOAST
ROMWEn
ROMOEn
TXD
DVS
DENB
DENG
DENR
DHS
SCL
VCP3230
VVINT
CB
RESETn
Y
SDA
CR
STBLED
VUV[7:0]
VVHS
VY[7:0]
VVCLK
SCL
VVVS
VFIELD
MUTE
POWER_ON
MUTE1
IR
05_VCP3230
NV320
SDA
SCL
VVHS
RESETn
VVCLK
NDSP_EN
VY[7:0]
VUV[7:0]
VVVS
VG[7:0]
VB[7:0]
VR[7:0]
VCLK
VVS
VHS
VPEN
06_NV320
MEMORY
SDA
SCL
ROMWEn
ROMOEn
VPPEN
D[15:0]
A[19:1]
07_MEMORY
TMDS
DBO[7:0]
DHS
DENG
DENR
DGE[7:0]
DRE[7:0]
DGO[7:0]
DRO[7:0]
DCLK
DVS
DBE[7:0]
MISC
LED-G
ICSSTM
ICSCLK
ICSSTD
LED-R
ICSDAT
TXD
RDn
D[7:0]
CS1n
STBLED
DCKEXT
MCKEXT
RXD
RESET
RESETn
NMI
POWER_ON
IRRCVR1
10_MISC
POWER
11_POWER
LVDS
DENG
DCLK
DVS
DHS
DTXON
RESET-2
SCL
SDA
CPUGO
PDPGO
PDWN
IRQ
DGE[7:0]
DRE[7:0]
DBE[7:0]
12_LVDS


AVDD C34 C35 C36 C37 C38 C39 C40 C41 C42 C43 0.1uF
PVDD C50 C51 0.1uF
V33 C52 C53 C54 C55 C56 C57 0.1uF
C58 47uF
VCC U5 LM2937_SOT223 VI VO GND TAB C44 C45 C46 0.1uF 47uF PVDD
VCC U6 LM2937_SOT223 VI VO GND TAB C47 C48 C49 0.1uF 47uF AVDD
U8A 74LVC126A C61
C59 39nF C60 3.9nF GFLT1 R16 3.3K GFILT
TP7 TP8
SDA SCL GBLKSPL GCOAST
U9 PI5V330 VGASEL HDCRIN HDYIN HDCBIN GRAIN GGAIN GBAIN
GMRED GMGRN GMBLU
47nF C62 GRIN
47nF C63 GGIN
1nF C64 GSOGIN
47nF C65 GBIN
C66 0.1uF
U7 AD9883A_140
FILT SDA SCL A0 CLAMP COAST RAIN GAIN SOGIN BAIN HSYNC VSYNC REFBYP MIDSCV
AVD1 AVD2 AVD3 AVD4 AVD5 AVD6 AVD7 AVD8 AVD9 AVD10
VDD1 VDD2 VDD3 VDD4 VDD5 VDD6 PVD1 PVD2
GND1 GND2 GND3 GND4 GND5 GND6 GND7 GND8 GND9 GND10 GND11 GND12 GND13 GND14 GND15 GND16 GND17 GND18 GND19 GND20
RED0 RED1 RED2 RED3 RED4 RED5 RED6 RED7
GREEN0 GREEN1 GREEN2 GREEN3 GREEN4 GREEN5 GREEN6 GREEN7
BLUE0 BLUE1 BLUE2 BLUE3 BLUE4 BLUE5 BLUE6 BLUE7
DATACK HSOUT SOGOUT VSOUT
ADR0 ADR1 ADR2 ADR3 ADR4 ADR5 ADR6 ADR7
ADG0 ADG1 ADG2 ADG3 ADG4 ADG5 ADG6 ADG7
ADB0 ADB1 ADB2 ADB3 ADB4 ADB5 ADB6 ADB7
ADCK ADHS ADSOG ADVS
47R RP14 RP15 RP16 RP17 RP18 RP19 RP20
GRE0 GRE1 GRE2 GRE3 GRE4 GRE5 GRE6 GRE7
GGE0 GGE1 GGE2 GGE3 GGE4 GGE5 GGE6 GGE7
GBE0 GBE1 GBE2 GBE3 GBE4 GBE5 GBE6 GBE7
ADSOGR
GRE[7:0] GGE[7:0] GBE[7:0]
GCLK GFBK GVS
GVREF GMIDV C67 C68 0.1uF
GHSYNC GVSYNC GAFEOE
U8C U8B U8D 74LVC126A
GBHSY GBVSY
TP9 GHS

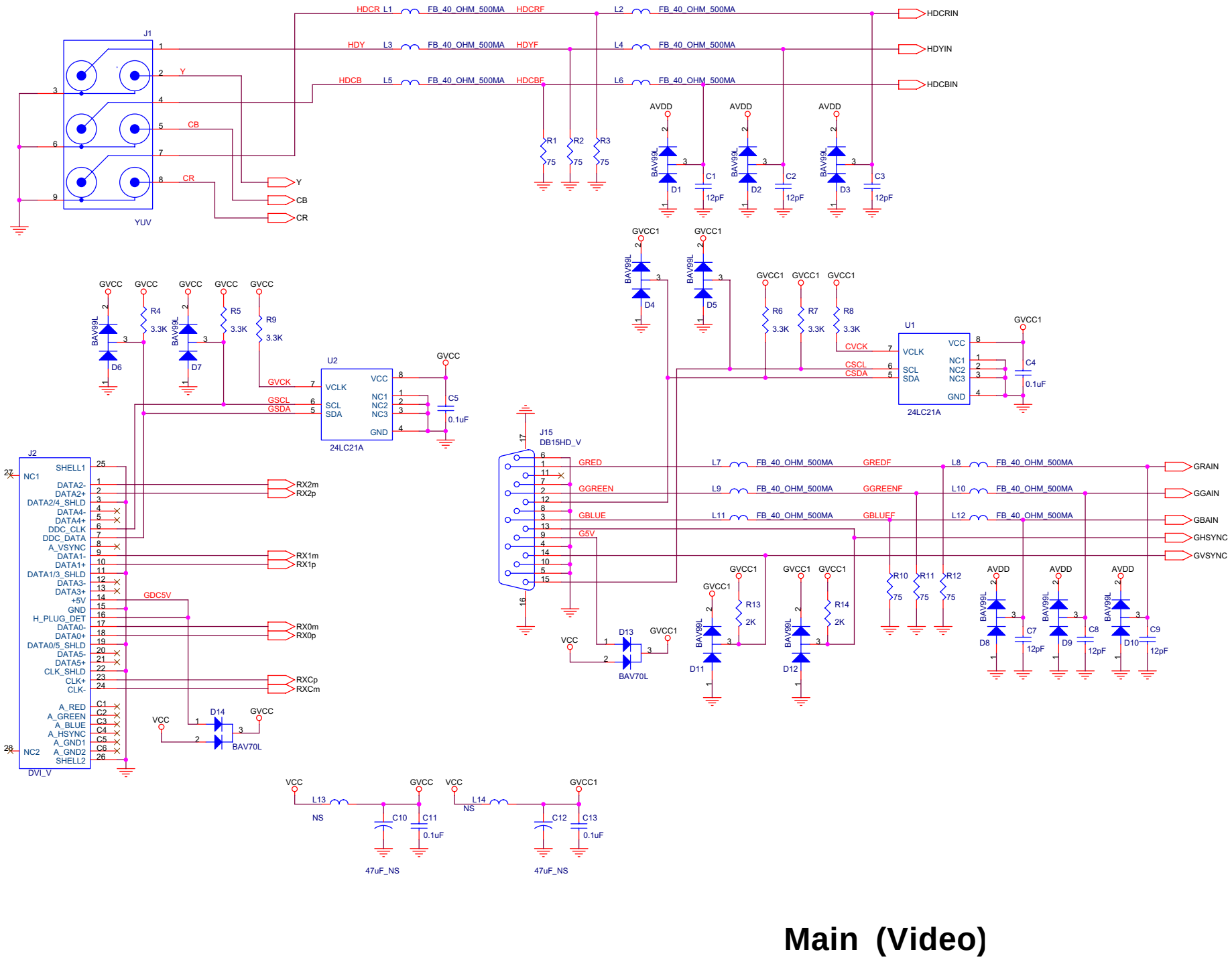
Main (Video)


OVCC
CVCC
PVCC
AVCC
U4
SII161
EXT_RES
SIRES
R15
510
SCDT
SISCDT
TP1
ODCK
DE
VSYNC
HSYNC
OCK_INV
PIXS
DFO
STAG_OUT
ST
PDO
PD
RSVD
GDFEOE
RX0p
RX0m
RX1p
RX1m
RX2p
RX2m
RXCp
RXCm
GBE[7:0]
GGE[7:0]
GRE[7:0]
GBO[7:0]
GGO[7:0]
GRO[7:0]
GCLK
GPEN
GVS
GHS
GFBK
U3
LM2937_SOT223
VCC
V33T
VI
VO
GND
TAB
C14
C15
C16
0.1uF
47uF
L15
L16
L17
L18
FB_420_OHM_200MA
C17
C23
C27
C29
10uF
C18
C19
C20
C21
C22
C24
C25
C26
C28
C30
C31
C32
C33

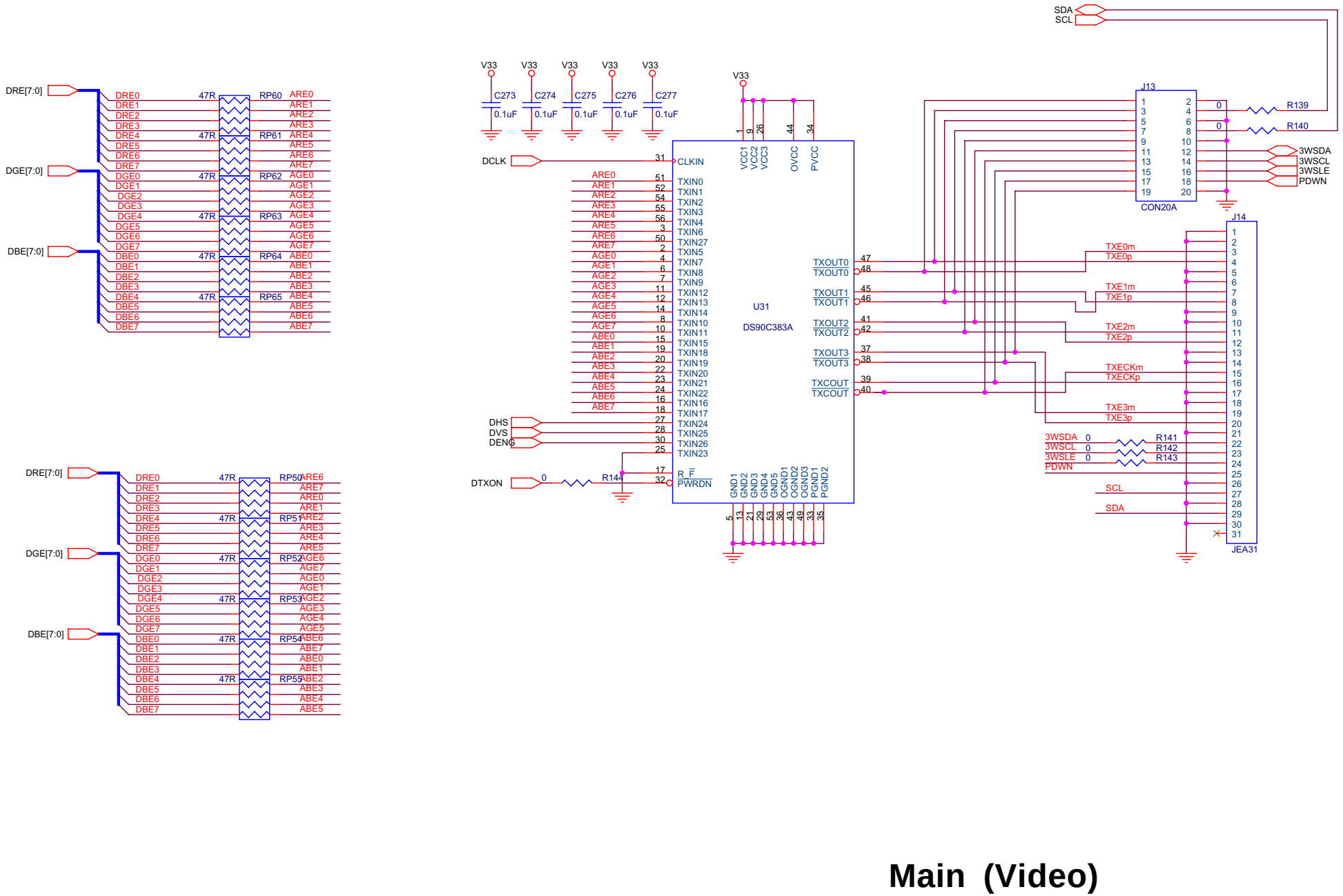
Main (Video)


D[15:0]
U16
Flash_8M
ROMOEn
ROMWEn
FWPn
VPPEN
JP1
HDR_2X2
VPP
VCC
GND1
GND2
Q4
3906
Q5
3904
VP3
VP2
VP1
R67
1K
R68
10K
C167
22uF
VPPON
JP2
FCEn
ICEn
R69
3.3K
R70
3.3K
R71
3.3K
C169
0.1uF
JP3
HDR_30X2
IRPn
R72
R73
IA20
R74
IA21
R75
A[19:1]
U17
24C16
SCL
SDA
NC0
NC1
NC2
WP
C168
0.1uF
V33
VCC

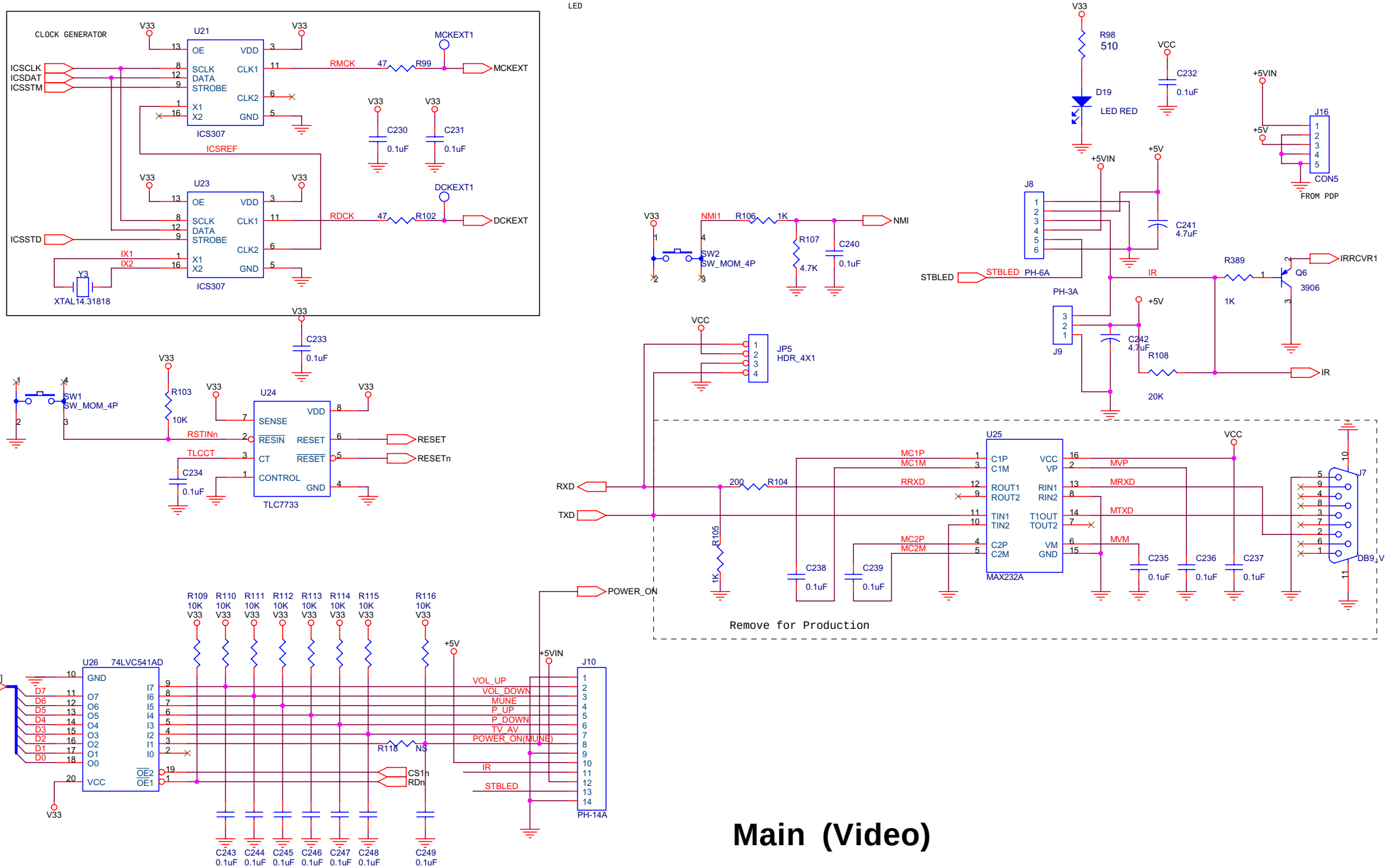
Main (Video)

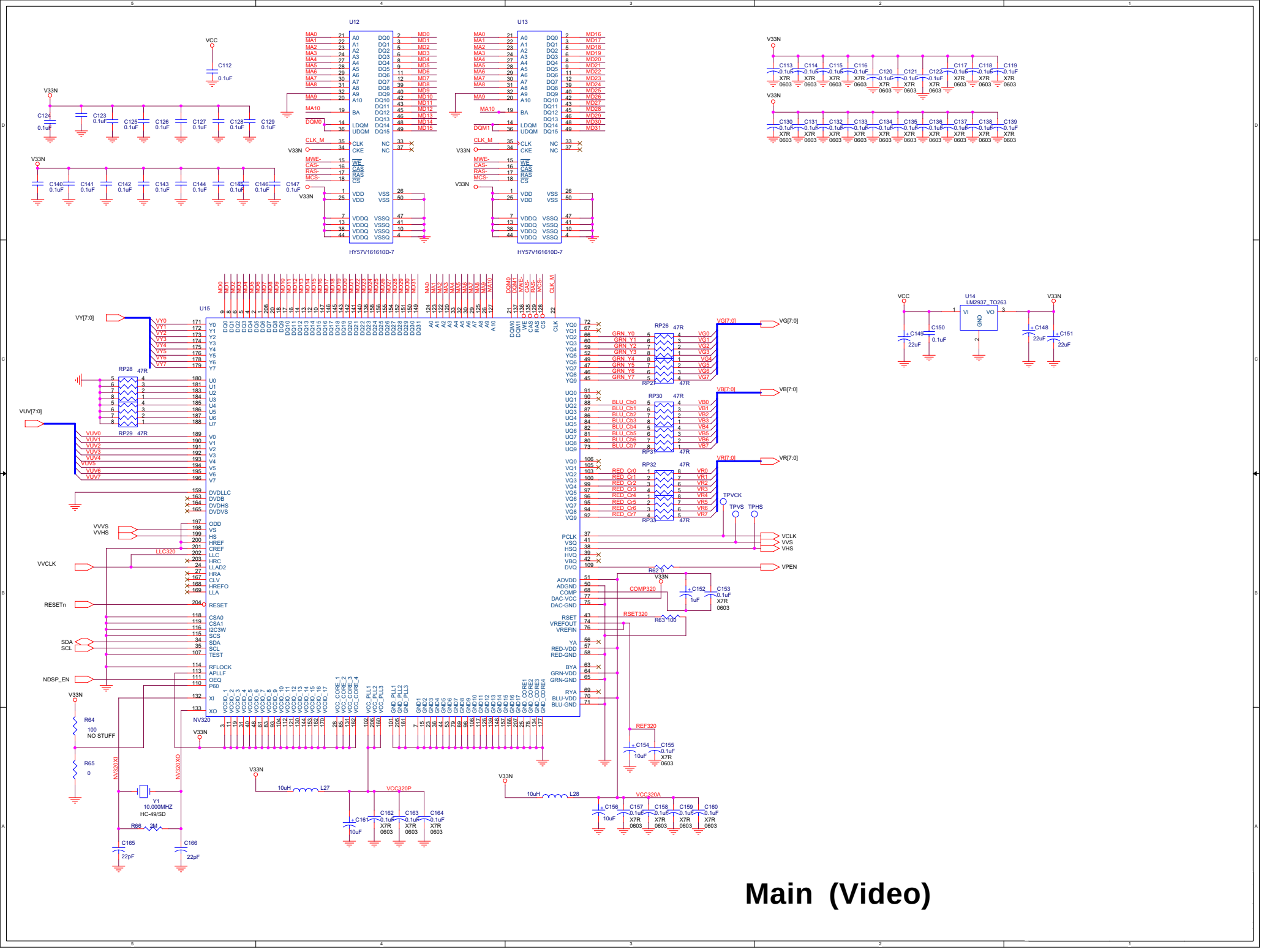

HDCR L1 FB_40_OHM_500MA HDCRF
L2 FB_40_OHM_500MA
HDCRIN
HDY L3 FB_40_OHM_500MA HDYF
L4 FB_40_OHM_500MA
HDYIN
HDCB L5 FB_40_OHM_500MA HDCBF
L6 FB_40_OHM_500MA
HDCBIN
J1
YUV
Y
CB
CR
R1 75
R2 75
R3 75
AVDD
BAV99L
D1
D2
D3
C1 12pF
C2 12pF
C3 12pF
GVCC1
D4
D5
R6 3.3K
R7 3.3K
R8 3.3K
CVCK
CSCL
CSDA
U1
24LC21A
C4 0.1uF
GVCC
D6
D7
R4 3.3K
R5 3.3K
R9 3.3K
GVCK
GSCL
GSDA
U2
C5 0.1uF
J2
DVI_V
RX2m
RX2p
RX1m
RX1p
RX0m
RX0p
RXCp
RXCm
GDC5V
D14
BAV70L
J15
DB15HD_V
GRED
GGREEN
GBLUE
G5V
L7 FB_40_OHM_500MA GREDF
L8 FB_40_OHM_500MA
GRAIN
L9 FB_40_OHM_500MA GGREENF
L10 FB_40_OHM_500MA
GGAIN
L11 FB_40_OHM_500MA GBLUEF
L12 FB_40_OHM_500MA
GBAIN
GHSYNC
GVSYNC
R10 75
R11 75
R12 75
R13 2K
R14 2K
D8
D9
D10
D11
D12
D13
C7 12pF
C8 12pF
C9 12pF
L13 NS
L14 NS
C10
C11 0.1uF
C12
C13 0.1uF
47uF_NS
47uF_NS

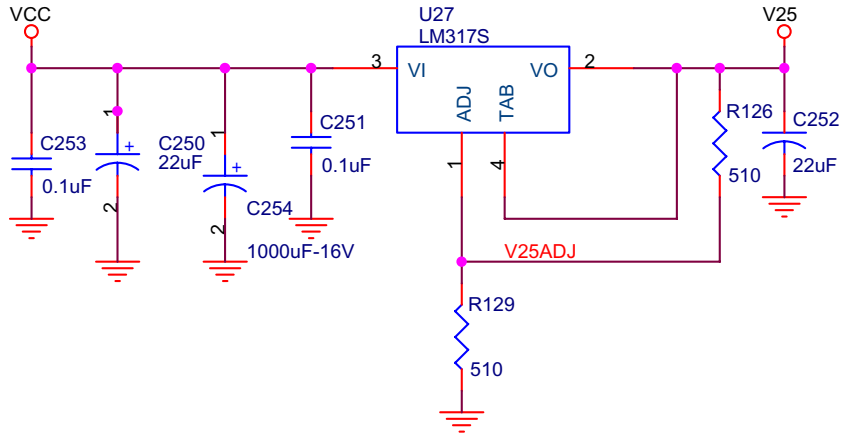
Main (Video)

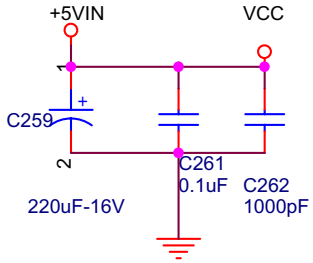

DRE[7:0]
DGE[7:0]
DBE[7:0]
47R
RP60
RP61
RP62
RP63
RP64
RP65
RP50
RP51
RP52
RP53
RP54
RP55
V33
C273
C274
C275
C276
C277
0.1uF
U31
DS90C383A
CLKIN
TXIN0
TXIN1
TXIN2
TXIN3
TXIN4
TXIN6
TXIN27
TXIN5
TXIN7
TXIN8
TXIN9
TXIN12
TXIN13
TXIN14
TXIN10
TXIN11
TXIN15
TXIN18
TXIN19
TXIN20
TXIN21
TXIN22
TXIN16
TXIN17
TXIN24
TXIN25
TXIN26
TXIN23
R_F
PWRDN
VCC1
VCC2
VCC3
OVCC
PVCC
GND1
GND2
GND3
GND4
GND5
OGND1
OGND2
OGND3
PGND1
PGND2
TXOUT0
TXOUT1
TXOUT2
TXOUT3
TXCOUT
DCLK
DHS
DVS
DENG
DTXON
R144
SDA
SCL
J13
CON20A
R139
R140
3WSDA
3WSCL
3WSLE
PDWN
J14
JEA31
TXE0m
TXE0p
TXE1m
TXE1p
TXE2m
TXE2p
TXECKm
TXECKp
TXE3m
TXE3p
R141
R142
R143

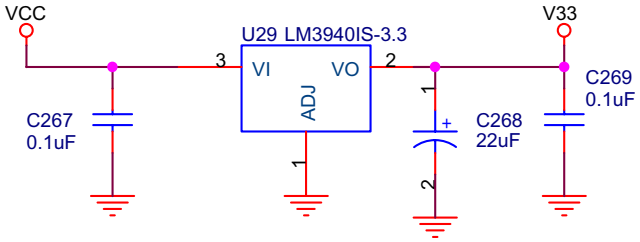
Main (Video)


CLOCK GENERATOR
U21
ICS307
U23
ICS307
ICSCLK
ICSDAT
ICSSTM
ICSSTD
ICSREF
RMCK
RDCK
MCKEXT1
DCKEXT1
MCKEXT
DCKEXT
XTAL14.31818
C230
C231
C233
R99
R102
R103
SW1
SW_MOM_4P
U24
TLC7733
RSTINn
TLCCT
RESET
RESETn
C234
LED
D19
LED RED
R98
510
C232
J16
CON5
FROM PDP
J8
C241
4.7uF
STBLED
PH-6A
PH-3A
J9
IR
R389
Q6
3906
IRRCVR1
C242
4.7uF
R108
20K
1K
NMI
NMI1
R106
R107
4.7K
C240
JP5
HDR_4X1
RXD
TXD
R104
R105
U25
MAX232A
MC1P
MC1M
MC2P
MC2M
RRXD
MVP
MRXD
MTXD
MVM
C235
C236
C237
C238
C239
J7
DB9_V
Remove for Production
POWER_ON
U26
74LVC541AD
D[7:0]
R109
R110
R111
R112
R113
R114
R115
R116
R118
CS1n
RDn
VOL_UP
VOL_DOWN
MUNE
P_UP
P_DOWN
TV_AV
POWER_ON(MUNE)
IR
STBLED
J10
PH-14A
C243
C244
C245
C246
C247
C248
C249
Main (Video)

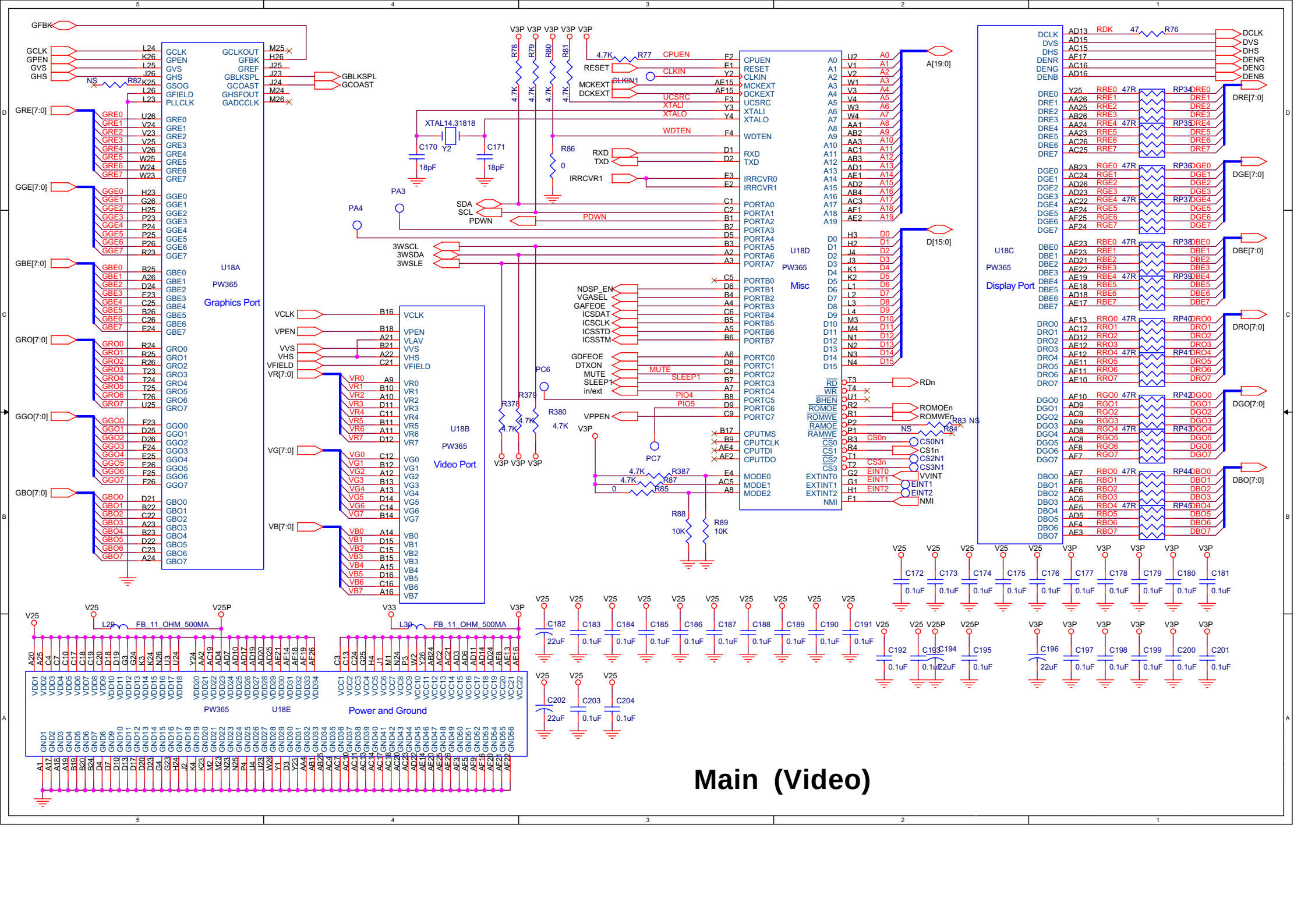

U12
U13
HY57V161610D-7
HY57V161610D-7
U15
U14
LM2937_TO263
VCC
V33N
VY[7:0]
VUV[7:0]
VG[7:0]
VB[7:0]
VR[7:0]
VCLK
VVS
VHS
VPEN
TPVCK
TPVS
TPHS
VVVS
VVHS
VVCLK
RESETn
SDA
SCL
NDSP_EN
LLC320
COMP320
RSET320
REF320
NV320
NV320XI
NV320XO
Y1
10.000MHZ
HC-49/SD
NO STUFF
VCC320P
VCC320A
10uH
L27
L28
R62 0
R63 100
R64 100
R65 0
R66 2M
C165 22pF
C166 22pF
Main (Video)

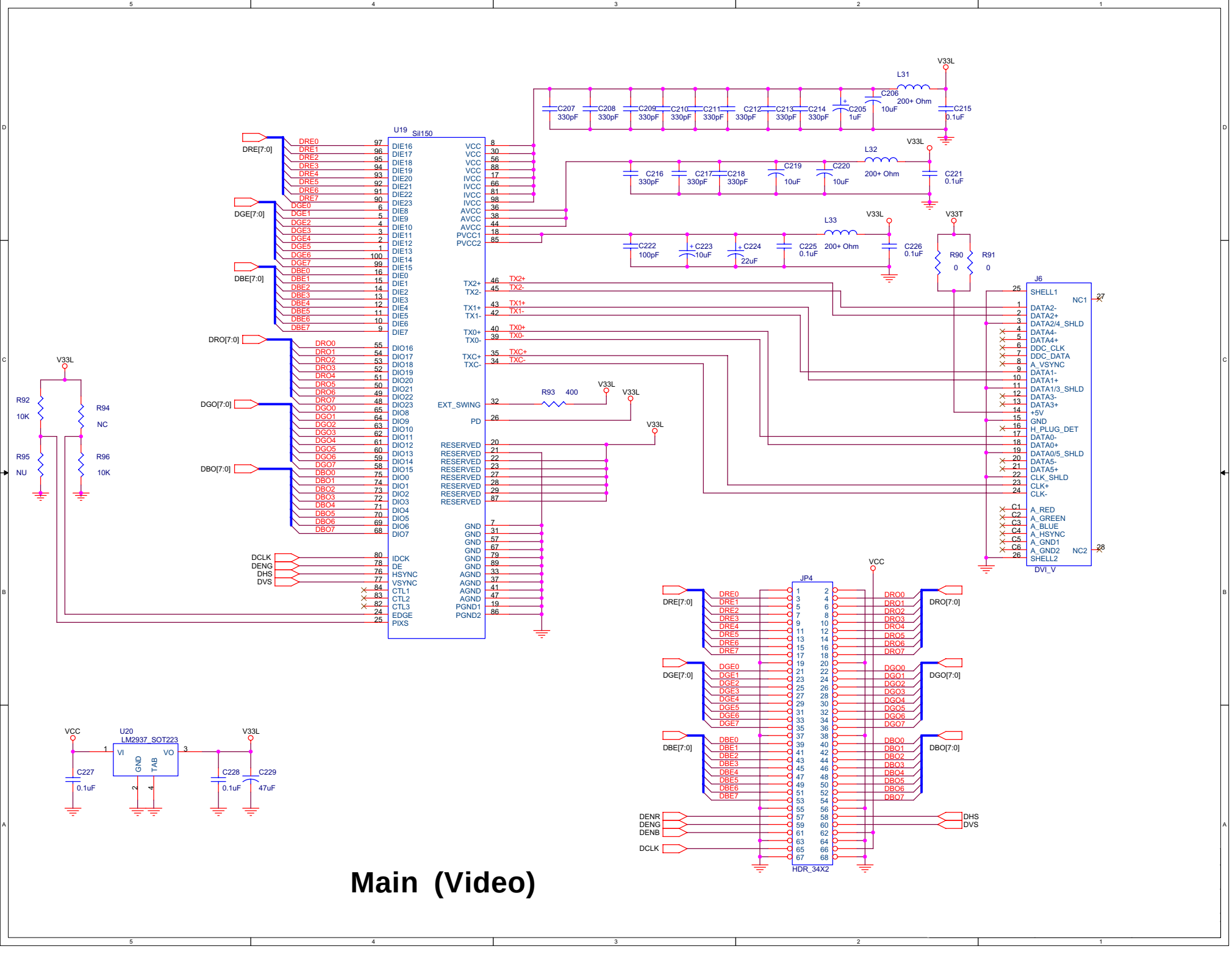

VCC
U27
LM317S
V25
3
VI
VO
2
ADJ
TAB
C253
0.1uF
C250
22uF
C254
1000uF-16V
C251
0.1uF
R126
510
C252
22uF
V25ADJ
R129
510


+5VIN
VCC
C259
220uF-16V
C261
0.1uF
C262
1000pF


VCC
U29 LM3940IS-3.3
V33
3
VI
VO
2
ADJ
C267
0.1uF
C268
22uF
C269
0.1uF

Main (Video)


Graphics Port
Video Port
Display Port
Misc
Power and Ground
Main (Video)


U19
Sil150
DRE[7:0]
DGE[7:0]
DBE[7:0]
DRO[7:0]
DGO[7:0]
DBO[7:0]
DCLK
DENG
DHS
DVS
EXT_SWING
PD
V33L
V33T
L31
L32
L33
200+ Ohm
R90
R91
R92
R93
R94
R95
R96
R92 10K
R93 400
R94 NC
R95 NU
R96 10K
J6
DVI_V
SHELL1
SHELL2
NC1
NC2
DATA2-
DATA2+
DATA2/4_SHLD
DATA4-
DATA4+
DDC_CLK
DDC_DATA
A_VSYNC
DATA1-
DATA1+
DATA1/3_SHLD
DATA3-
DATA3+
+5V
GND
H_PLUG_DET
DATA0-
DATA0+
DATA0/5_SHLD
DATA5-
DATA5+
CLK_SHLD
CLK+
CLK-
A_RED
A_GREEN
A_BLUE
A_HSYNC
A_GND1
A_GND2
JP4
HDR_34X2
U20
LM2937_SOT223
VCC
VI
VO
GND
TAB
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C228 0.1uF
C229 47uF
C207 330pF
C208 330pF
C209 330pF
C210 330pF
C211 330pF
C212 330pF
C213 330pF
C214 330pF
C205 1uF
C206 10uF
C215 0.1uF
C216 330pF
C217 330pF
C218 330pF
C219 10uF
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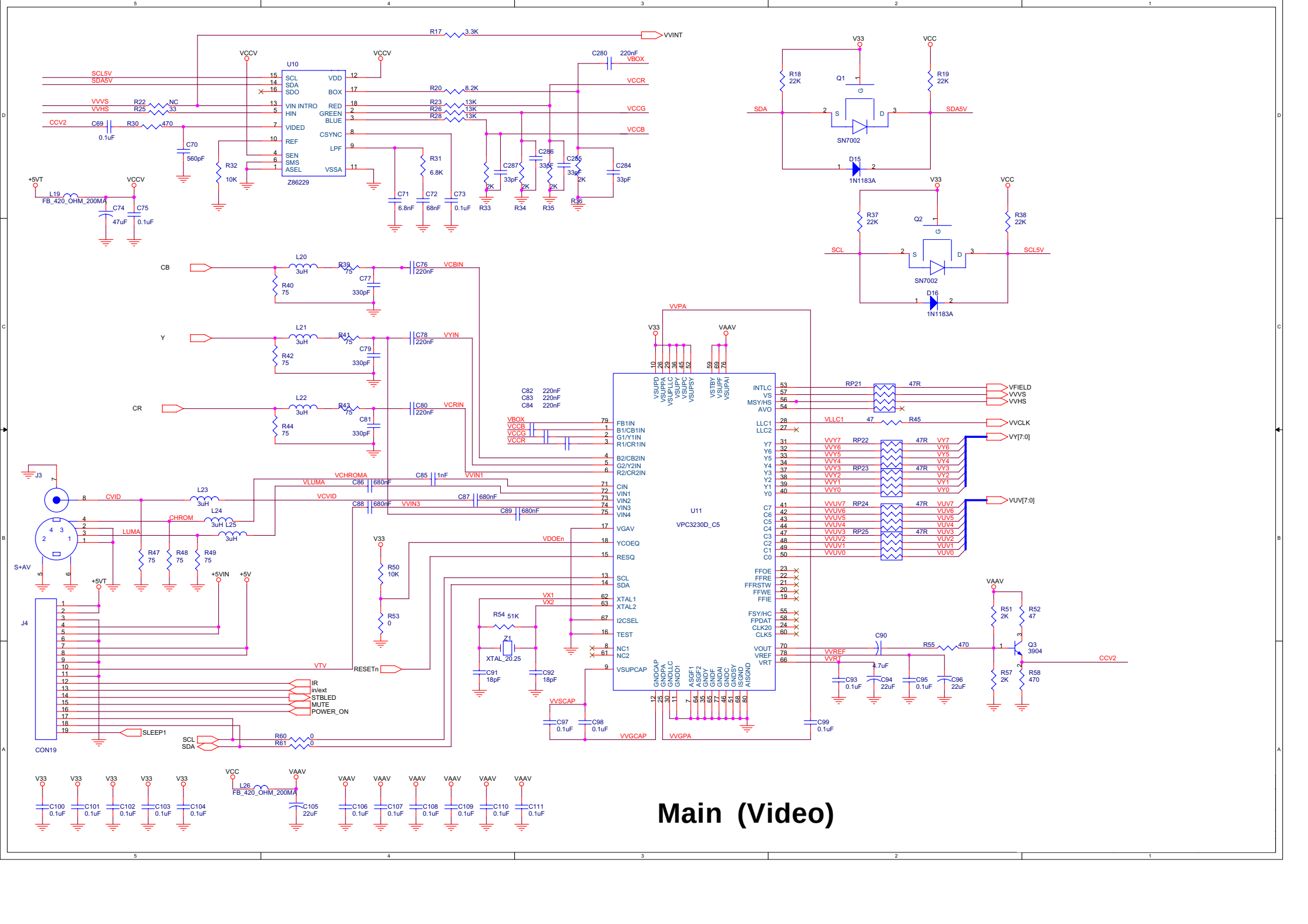
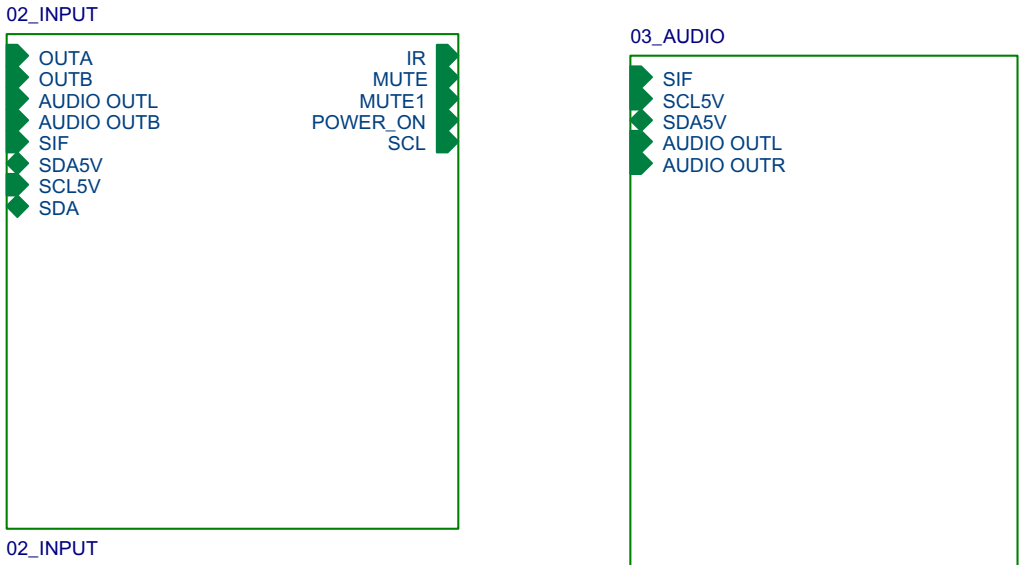
C222 100pF
C223 10uF
C224 22uF
C225 0.1uF
C226 0.1uF

Main (Video)


U10
Z86229
SCL5V
SDA5V
VVVS
VVHS
CCV2
VCCV
+5VT
L19
FB_420_OHM_200MA
R17 3.3K
VVINT
R18 22K
R19 22K
Q1
SN7002
D15
1N1183A
R37 22K
R38 22K
Q2
SN7002
D16
1N1183A
CB
Y
CR
VCBIN
VVIN
VCRIN
U11
VPC3230D_C5
VVPA
VAAV
J3
J4
CON19
S+AV
+5VIN
+5V
SLEEP1
IR
in/ext
STBLED
MUTE
POWER_ON
VTV
RESETn
XTAL_20.25
VFIELD
VVCLK
VY[7:0]
VUV[7:0]
Main (Video)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OUTA
OUTB
AUDIO OUTL
AUDIO OUTB
SIF
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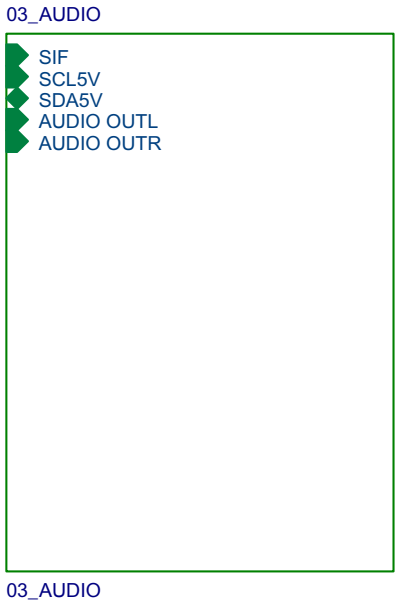
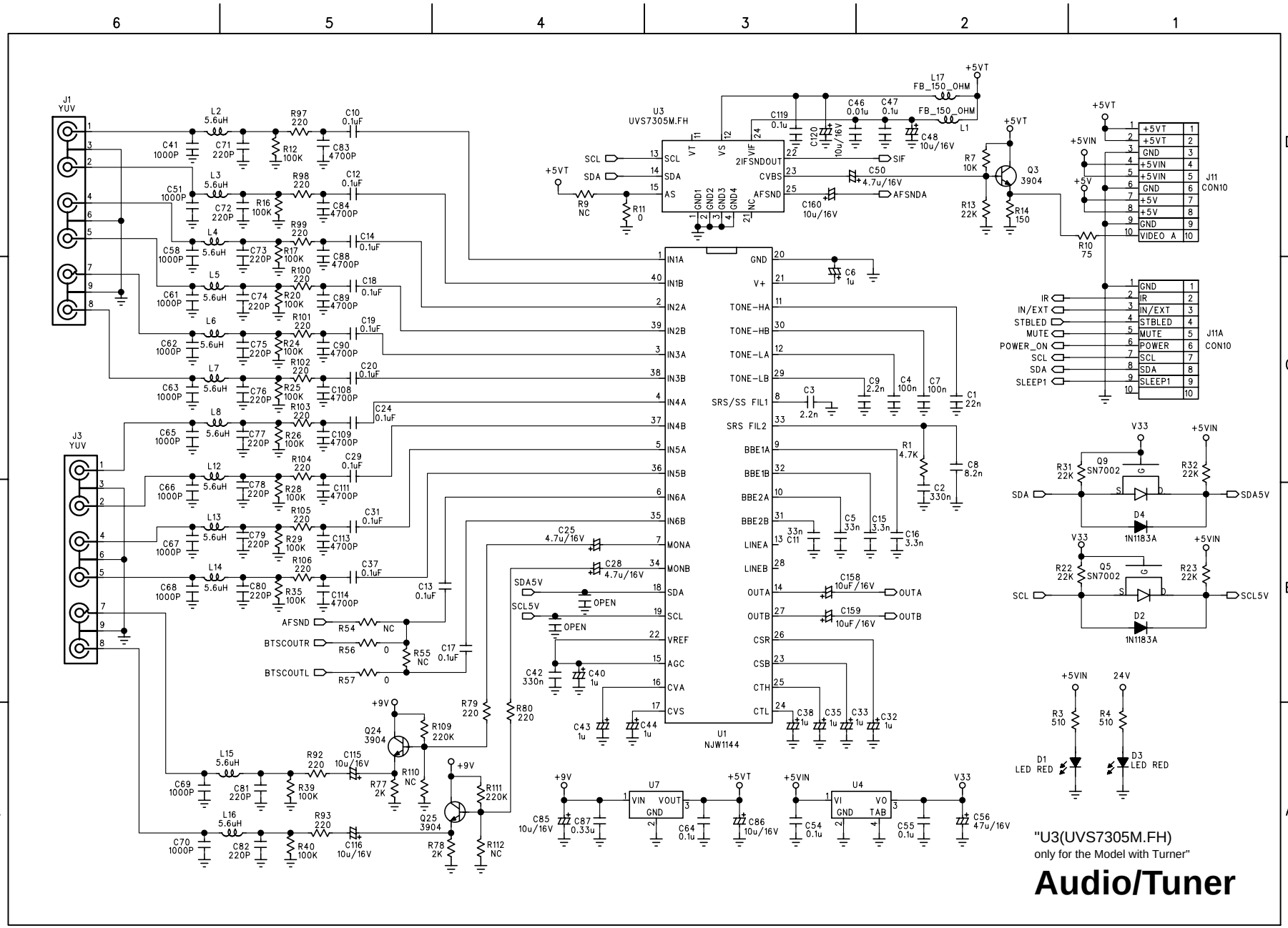
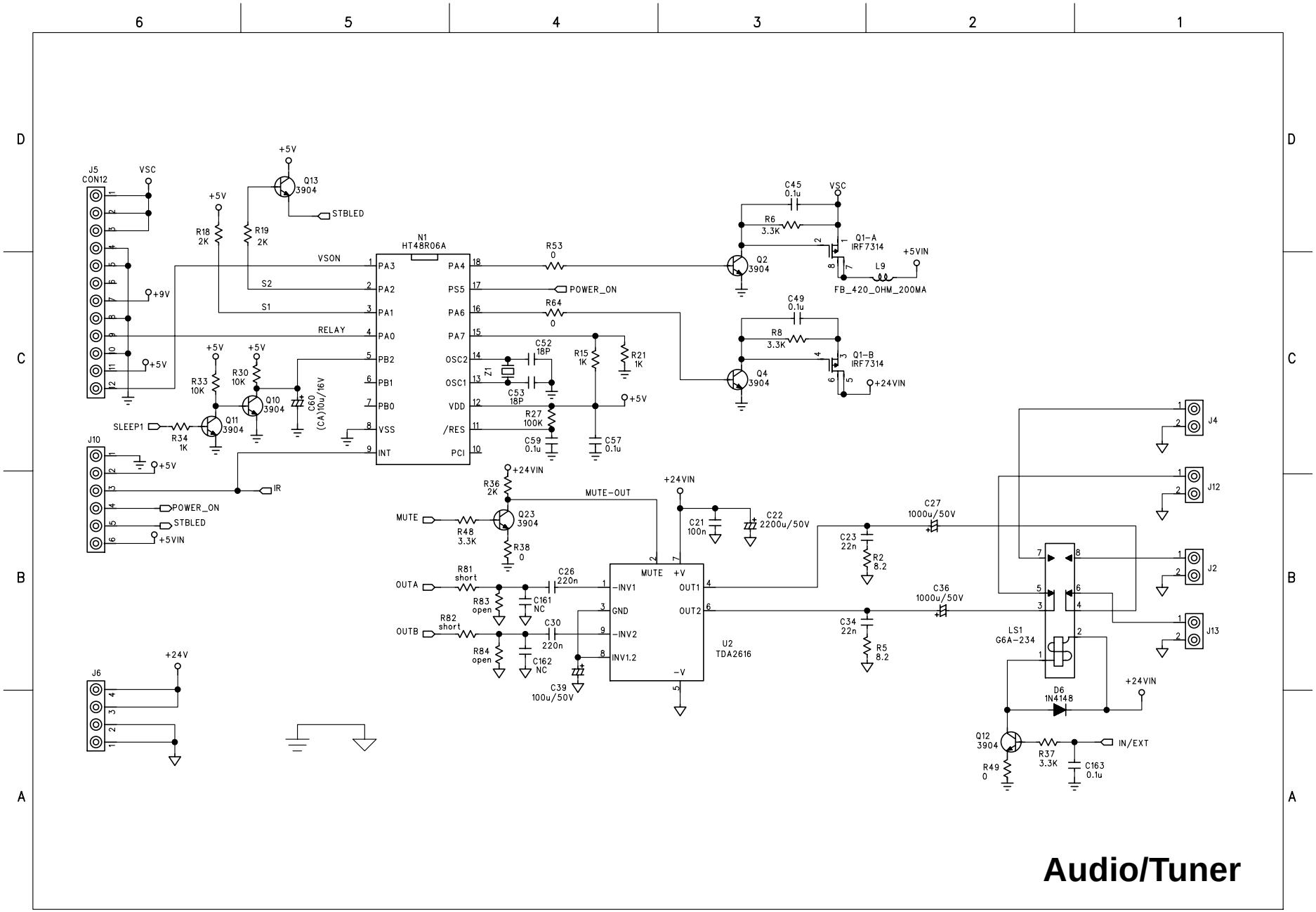
SCL5V
SDA
IR
MUTE
MUTE1
POWER_ON
SCL
02_INPUT


03_AUDIO
SIF
SCL5V
SDA5V
AUDIO OUTL
AUDIO OUTR
03_AUDIO

04_MCU+AMP
POWER_ON
RELAY
MUTE
OUTA
OUTB
MUTE1
IR
04_MCU+AMP


"U3(UVS7305M.FH)
only for the Model with Turner"
Audio/Tuner


6
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D
C
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A
J5
CON12
VSC
+5V
Q13
3904
STBLED
R18
2K
R19
2K
N1
HT48R06A
VSON
S2
S1
RELAY
PA3
PA2
PA1
PA0
PB2
PB1
PB0
VSS
INT
PA4
PS5
PA6
PA7
OSC2
OSC1
VDD
/RES
PCI
R53
0
POWER_ON
R64
0
C52
18P
C53
18P
Z1
R15
1K
R21
1K
R27
100K
C59
0.1u
C57
0.1u
+9V
+5V
R33
10K
R30
10K
Q10
3904
Q11
3904
SLEEP1
R34
1K
C60
(CA)10u/16V
J10
IR
POWER_ON
STBLED
+5VIN
C45
0.1u
R6
3.3K
Q2
3904
Q1-A
IRF7314
L9
FB_420_OHM_200MA
C49
0.1u
R8
3.3K
Q4
3904
Q1-B
IRF7314
+24VIN
R36
2K
MUTE-OUT
MUTE
R48
3.3K
Q23
3904
R38
0
C21
100n
C22
2200u/50V
C27
1000u/50V
C23
22n
R2
8.2
R81
short
R83
open
C161
NC
C26
220n
OUTA
R82
short
R84
open
C162
NC
C30
220n
OUTB
C39
100u/50V
MUTE
+V
-INV1
GND
-INV2
INV1.2
-V
OUT1
OUT2
U2
TDA2616
C36
1000u/50V
C34
22n
R5
8.2
LS1
G6A-234
J4
J12
J2
J13
D6
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R49
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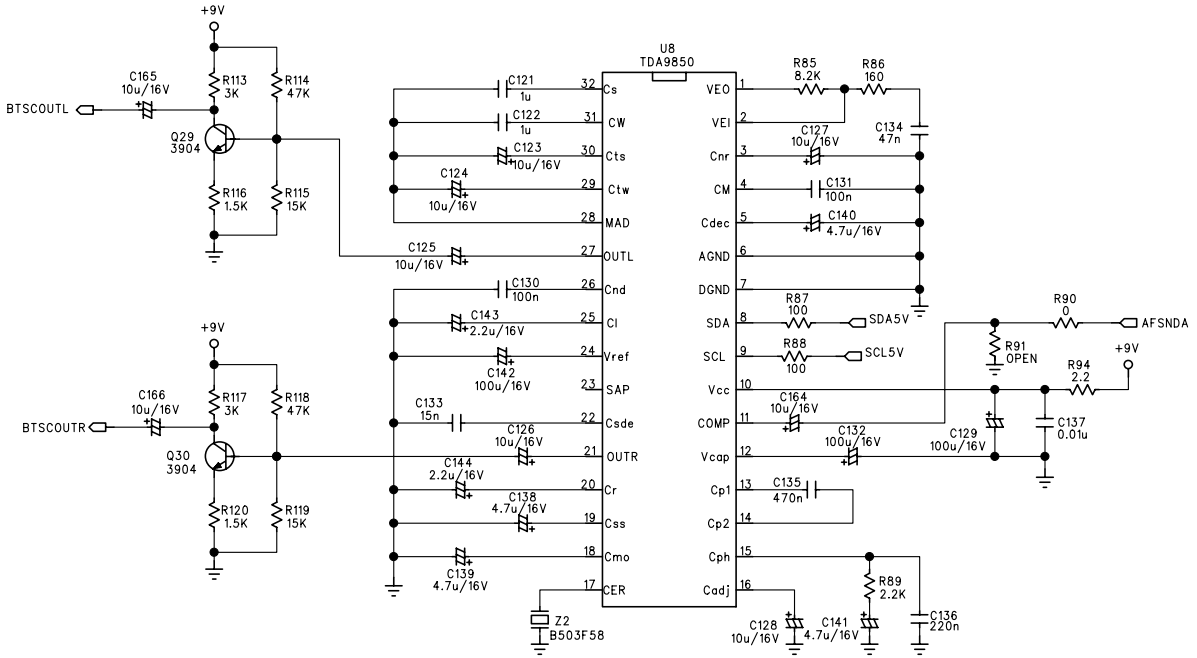
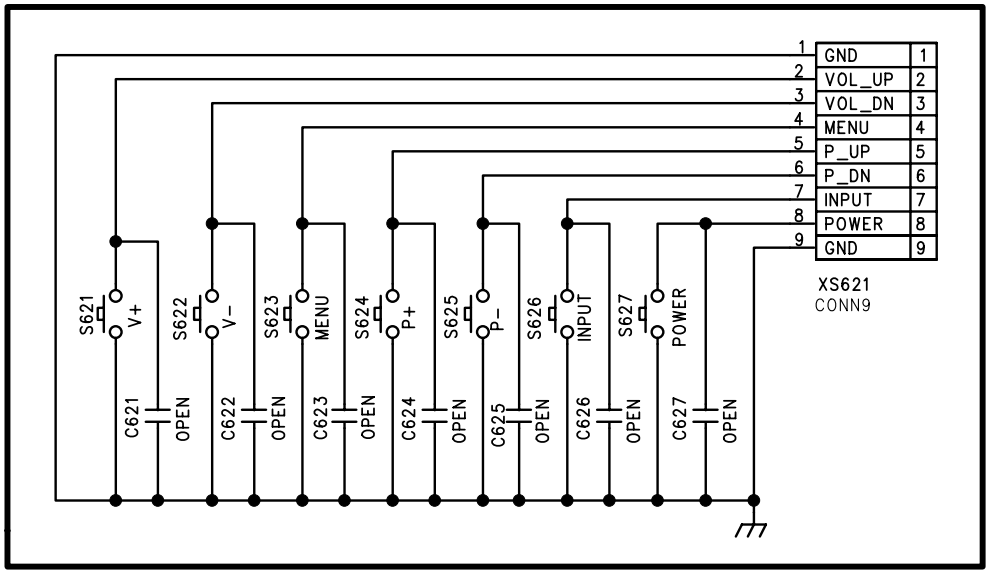
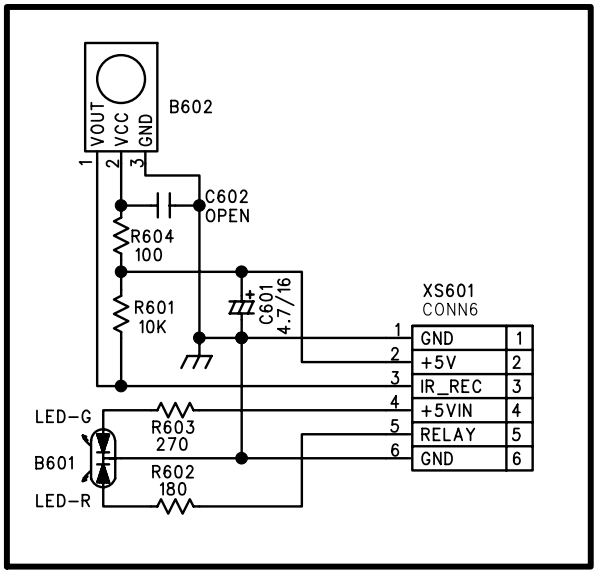
+24V
Audio/Tuner

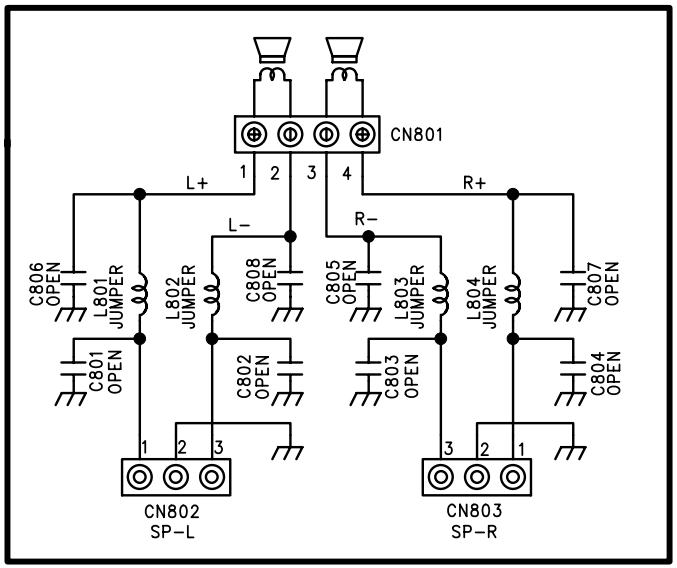


"U8(TDA9850)
only for the Model with Turner"

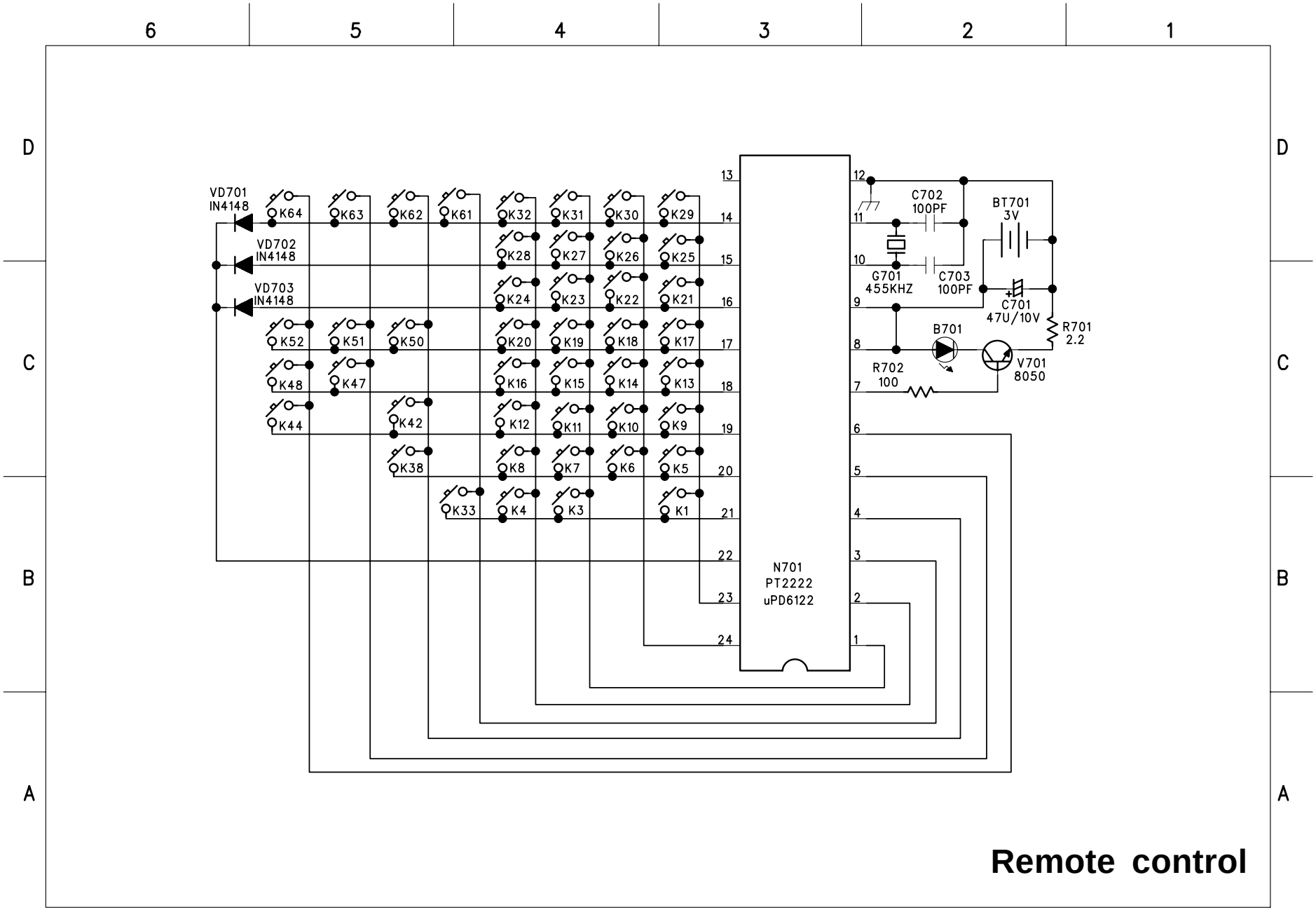
Audio/Tuner







Keypad
Remote control receiver
External L/R Speakers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VD701
IN4148
VD702
IN4148
VD703
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23
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N701
PT2222
uPD6122
12
11
10
9
8
7
6
5
4
3
2
1
C702
100PF
BT701
3V
G701
455KHZ
C703
100PF
C701
47U/10V
R701
2.2
B701
R702
100
V701
8050
Remote control

Basic Operations & Circuit Description

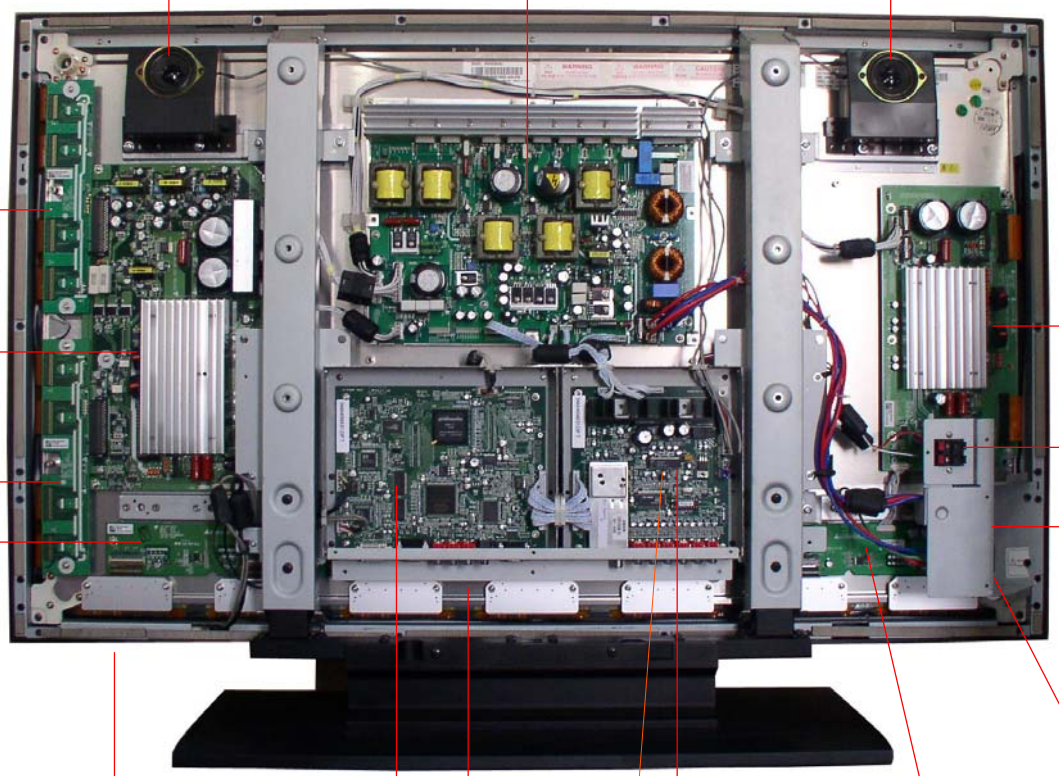
MODULE

There are 1 pc. panel and 8 pc.s PCB including 2 pc.s Y/Z Sustainer board, 2 pc.s Y Drive board, 2 pc.s X (left and right) Extension PCB, 1 pc. Control (Signal Input) and 1 pc. Power board in the Module.

SET

There are 5 pc.s PCBs including 1 pc. Tuner/Audio board, 1 pc. Keypad board, 1 pc. Remote Control Receiver board, 1 pc. L/R Speakers and 1 pc. Main (Video) board in the SET.

Parts position



PCB function

1. **Power:**
   (1). Input voltage: AC 110V~240V, 47Hz~63Hz.
   Input range: AC 90V(Min)~265V(Max) auto regulation.
   (2). To provide power for PCBs.
2. **Main (Video InterFace) board: To converter TV signals, S signals, AV signals, Y Pb/Cb Pr/Cr signals, DVI signals and D-SUB signals to digital ones and to transmit to Control board.**
3. **Control board: Dealing with the digital signal for output to panel.**
4. **Y-Sustainer / Z-Sustainer board:**
   (1). Receiving the signals from Control and high voltage supply.
   (2). Output scanning waveform for Module.
5. **Y-Drive board: Receive signal from Y sustainer, output horizontal scanning wave-form to the panel.**
6. **X (left and right) extension board: Output addressing signals.**
7. **Tuner/Audio Board：Amplifying the audio signal to the internal or external speakers of which selected.**

PCB failure analysis

1. **CONTROL:** a. Abnormal noise on screen. b. No picture.
2. **MAIN (VIDEO):** a. Lacking color, Bad color scale.
   b. No voice.
   c. No picture but with signals output, OSD and back light.
   d. Abnormal noise on screen.
3. **POWER:** No picture, no power output.
4. **Z - Sustainer:** a. No picture.
   b. Color not enough.
   c. Flash on screen.
5. **Y - Sustainer:** Darker picture with signals.

6. **Audio Bard:** a. No voice. (Make sure status: Mute / Internal, External speaker)
   b. Noise
7. **Y/Z - Sustainer:** The component working temperature is about 55^{o}C.
   If the temperature rises abnormal, this may be a error point.

Basic operation of Plasma Display

1. After turning on power switch, power board sends 5Vst-by Volt to Micro Processor IC waiting for ON signals from Key Switch or Remote Receiver.

2. When the ON signal from Key Switch or Remote Receiver is detected, Micro Processor will send ON Control signals to Power. Then Power sends (5Vsc, 9Vsc, 24V and RLY ON, Vs ON) to PCBs working. This time VIF will send signals to display back light, OSD on the panel and start to search available signal sources. If the audio signals input, them will be amplified by Audio AMP and transmitted to Speakers.

3. If some abnormal signals are detected (for example: over volts, over current, over temperature and under volts), the system will be shut down by Power off.

Main IC Specifications

- PW171 Image Processor
- AD9883A 110MSPS/140MSPS Analog Interface for Flat Panel Displays
- NV320 Video Enhancement Processor
- VCP 323XD comb Filter Video Processor
- Sil161B Panel Link Receiver
- Z86229 NTSC Line 21 CCD Decoder
- TDA9850 BTSC stereo/SAP decoder(only for the Model with Turner)
- NJW1144 Audio Processor

Product Specification:
PW171 ImageProcessor

XGA/SXGA/UXGA Flat Panel Display Controller IC

d to result in a personal injury or loss of life. Customers using or selling Pixelworks devices for use in such

Preliminary

pixelworks™

General Description

PW171 is a highly integrated “system-on-a-chip” that interfaces analog, digital, and video inputs in virtually any format to a flat panel monitor or multimedia display. PW171 is pin-compatible with the PW364.

An embedded SDRAM frame buffer and memory controller perform frame rate conversion. Computer images from VGA to UXGA at almost any refresh rate can be resized to fit on a fixed-frequency target display device with any resolution up to UXGA with full 24-bit color.

PW171 includes advanced second-generation image scaling that provides completely programmable, horizontal and vertical image scaling.

PW171 also includes advanced second-generation sync decoding which provides full support for a wide variety of sync types. This includes interlaced, progressive, sync-on-green, and TMDS DE (Data Enable) only.

PW171 ImageProcessor supports NTSC or PAL video data with a 4:3 aspect ratio and 16:9 aspect ratio sources, such as DVD or HDTV. Nonlinear scaling and separate horizontal and vertical scalers allow these inputs to be resized optimally for the native resolution and aspect ratio of the display device.

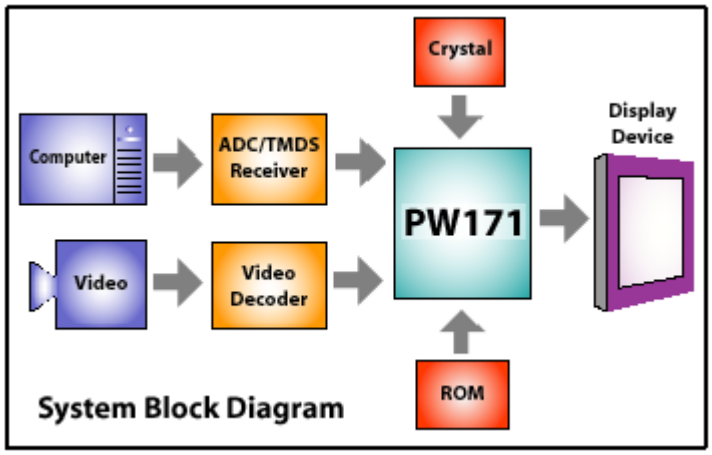
PW171 uses an integrated PLL to synchronize the display interface timing to the input timing. This requires only a single external crystal to generate all necessary clocks for the system.

An integrated OSD controller provides bit-mapped based OSDs with 16 colors from a 64K color palette. The OSD controller supports transparent and translucent functions.

PW171 provides a Pulse Width Modulation (PWM) output for low cost backlight or audio control.

With reference source code and an on-chip microprocessor, manufacturers can develop feature-rich products with rapid time-to-market. Programmable features include the user interface, custom start-up screen, all automatic imaging features, and special screen effects.

PW171 incorporates new features while maintaining backward compatibility with the PW264 and PW364 ImageProcessors.



Features

- Second-generation Image Scaling
- Second-generation Automatic Image Optimization
- Color Space Converter for graphics inputs
- Video processing
- Picture-In-Picture (PIP)
- Frame rate conversion
- Color matrix for improved color temperature adjustment
- On-board PLLs to generate MCLK and DCLK
- On-screen display
- On-chip microprocessor
- JTAG debugging port
- 8-bit, 9-bit, or 10-bit display outputs
- 24-bit CPU Addressing
- Hardware 2-Wire serial bus support
- Hardware PWM output

Applications

- LCD Monitors
- Plasma Displays
- Multimedia Displays

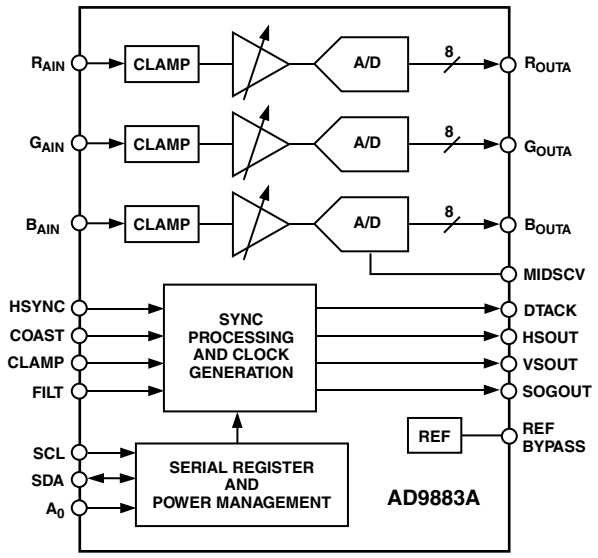
110 MSPS/140 MSPS Analog Interface for Flat Panel Displays

AD9883A

FEATURES
140 MSPS Maximum Conversion Rate
300 MHz Analog Bandwidth
0.5 V to 1.0 V Analog Input Range
500 ps p-p PLL Clock Jitter at 110 MSPS
3.3 V Power Supply
Full Sync Processing
Sync Detect for "Hot Plugging"
Midscale Clamping
Power-Down Mode
Low Power: 500 mW Typical
4:2:2 Output Format Mode

APPLICATIONS
RGB Graphics Processing
LCD Monitors and Projectors
Plasma Display Panels
Scan Converters
Microdisplays
Digital TV

FUNCTIONAL BLOCK DIAGRAM



GENERAL DESCRIPTION

The AD9883A is a complete 8-bit, 140 MSPS monolithic analog interface optimized for capturing RGB graphics signals from personal computers and workstations. Its 140 MSPS encode rate capability and full power analog bandwidth of 300 MHz supports resolutions up to SXGA (1280 × 1024 at 75 Hz).

The AD9883A includes a 140 MHz triple ADC with internal 1.25 V reference, a PLL, and programmable gain, offset, and clamp control. The user provides only a 3.3 V power supply, analog input, and Hsync and COAST signals. Three-state CMOS outputs may be powered from 2.5 V to 3.3 V.

The AD9883A's on-chip PLL generates a pixel clock from the Hsync input. Pixel clock output frequencies range from 12 MHz to 140 MHz. PLL clock jitter is 500 ps p-p typical at 140 MSPS. When the COAST signal is presented, the PLL maintains its output frequency in the absence of Hsync. A sampling phase adjustment is provided. Data, Hsync, and clock output phase relationships are maintained. The AD9883A also offers full sync processing for composite sync and sync-on-green applications.

A clamp signal is generated internally or may be provided by the user through the CLAMP input pin. This interface is fully programmable via a 2-wire serial interface.

Fabricated in an advanced CMOS process, the AD9883A is provided in a space-saving 80-lead LQFP surface-mount plastic package and is specified over the 0°C to 70°C temperature range.

REV. A

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Tel:
Fax:

NV320 Video Enhancement Processor

1.0 Introduction

The NV320 is a single-chip, programmable video display processor providing advanced features for progressive scan, high frame-rate TV. The NV320 improves upon the functionality of the NV320P by handling non-standard video input signals. Other feature enhancements include DCTI, Black Level Stretch, and Saturation Control.

The NV320 offers the following features.

1.1 Highly Integrated Video Processor

- Three, on-chip, 10-bit Digital-to-Analog Converters (DACs)
- Built-in memory controller supporting SDRAM or SGRAM
- 0.35µ CMOS process
- 3.3V power supply with 5V tolerant I/Os
- Standard 208-pin PQFP

1.2 Video Input

- Multiple video input modes
  - Data acquisition mode
  - Line-locked mode
  - DVD mode
- Multiple video input data formats
  - Digital 16-bit YUV (4:2:2) or 12-bit YUV (4:1:1)
  - Digital 8-bit YUV (ITU-R 656)
  - Digital 24-bit YUV (4:4:4)

1.3 Noise Reduction

- Motion adaptive noise reduction filter

1.4 Color Processing

- Built-in color space conversion
- Selectable output color space: YUV or RGB

1.5 Video Processing

- Advanced, non-linear video processing
- Motion compensated deinterlacing
- Programmable peaking
- Non-linear interpolation
- Background coloring
- Anti-flickering circuitry
- NTSC/PAL to SDTV 480p format conversion
- Frame rate up-conversion (50Hz up to 75Hz for PAL, 60Hz up to 90Hz for NTSC)
- DCTI (Digital Color Transient Improvement)
- Black Level Stretch
- Saturation Control

1.6 Host Interface

- I^2C interface
- No programming needed for default mode application

1.7 General Description and Applications

The NV320 is a single chip digital video processor for progressive and digital TV applications. It provides high quality video processing including video noise reduction, motion compensation, sharpness enhancement, and resolution enhancement. It also provides frame rate conversion and progressive scan conversion with deinterlacing.

The NV320 is a CMOS mixed signal circuit highly integrated with three, 10-bit digital-to-analog converters controlled by the I^2C interface. The NV320 accepts 16-bit YUV (4:2:2), 12-bit YUV (4:1:1), and 8-bit YUV (ITU-R 656) simultaneously, or it accepts 24-bit YUV (4:4:4) input from a front-end digital video color decoder or from an analog-to-digital converter. Additionally, NV320 supports multiple video input modes: acquisition mode, line-locked mode, and DVD mode.

The NV320 has an on-chip detection logic block that corrects non-standard input signals before processing.

Applications for the NV320 chip are listed here.

- Progressive scan televisions
- Digital televisions (the chip is DTV/HDTV ready)

- Internet televisions
- Home theater and multimedia televisions
- Video conferencing

2.0 Ordering Information

Part Number	NV320
Package	PQFP 208
Description	Plastic quad flat package, 208 leads
Version	1.0

3.0 Block Diagram of NV320

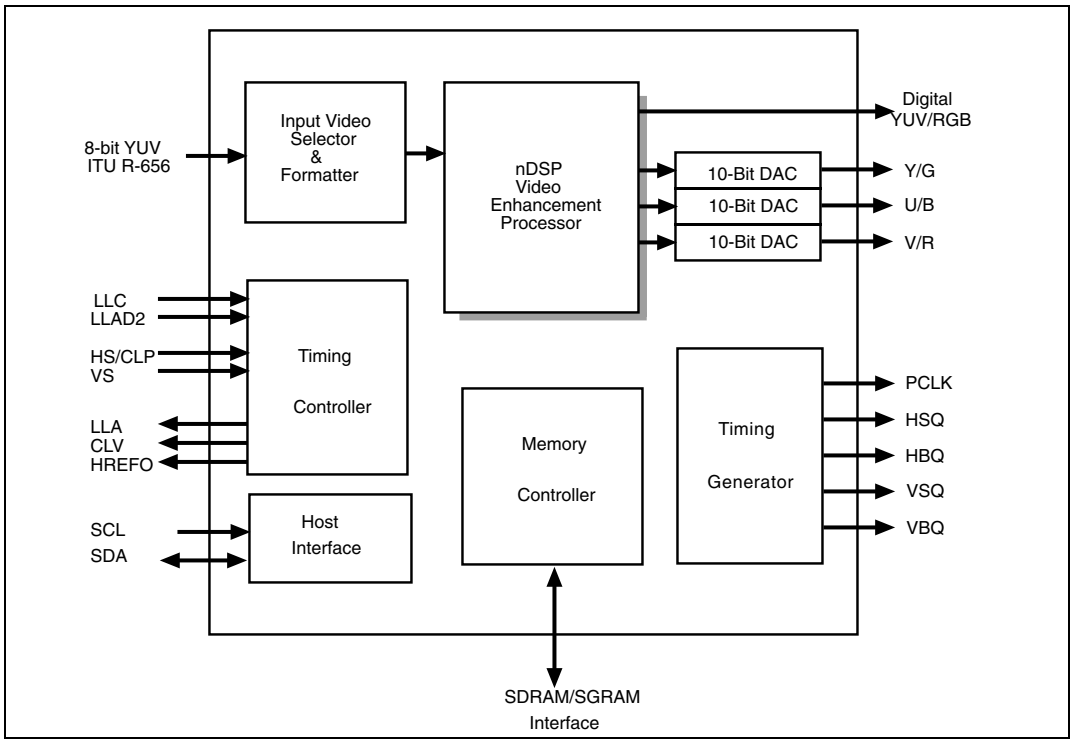


Figure 1. Block Diagram of NV320

VPC 323xD Comb Filter Video Processor

1. Introduction

The VPC 323xD is a high-quality, single-chip video front-end, which is targeted for 4:3 and 16:9. 50/60 Hz and 100/120 Hz TV sets. It can be combined with other members of the DIGIT3000 IC family (such as DDP 331x) and/or it can be used with 3rd-party products.

The main features of the VPC 323xD are

- High-performance adaptive 4H comb filter Y/C separator with adjustable vertical peaking.
- Multi-standard color decoder PAL/NTSC/SECAM including all substandards.
- Four CVBS, one S-VHS input, one CVBS output.
- Two RGB/YCrCb component inputs, one Fast Blank (FB) input.
- Integrated high-quality A/D converters and associated clamp and AGC circuits.
- Multi-standard sync processing.
- Linear horizontal scaling (0.25⋯4), as well as nonlinear horizontal scaling 'Panoramavision'.
- PAL+ preprocessing.
- Line-locked clock, data and sync, or 656-output interface.
- Peaking, contrast, brightness, color saturation and tint for RGB/YCrCb and CVBS/S-VHS.
- High-quality soft mixer controlled by Fast Blank.
- PIP processing for four picture sizes (1/4, 1/9, 1/16, or 1/36 of normal size) with 8-bit resolution.
- Control interface for external field memory.
- I^2C-bus interface.
- One 20.25-MHz crystal, few external components.
- 80-pin PQFP package.

General Description

The SiI 161B receiver uses PanelLink Digital technology to support high-resolution displays up to UXGA (25-165MHz). This receiver supports up to true color panels (24 bits per pixel, 16M colors) with both one and two pixels per clock.

All PanelLink products are designed on a scaleable CMOS architecture, ensuring support for future performance enhancements while maintaining the same logical interface. System designers can be assured that the interface will be stable through a number of technology and performance generations.

PanelLink Digital technology simplifies PC and display interface design by resolving many of the system level issues associated with high-speed mixed signal design, providing the system designer with a digital interface solution that is quicker to market and lower in cost.

Features

- Low Power Operation: 280mA max. current consumption at 3.3V core operation
- Time staggered data output for reduced ground bounce and lower EMI
- Sync Detect feature for Plug & Display
- Cable Distance Support: over 5m with twisted-pair, fiber-optics ready
- ESD tolerant to 5kV (HBM on all pins)
- Compliant with DVI 1.0 (DVI is backwards compatible with VESA® P&D™, FPDI-2™ and DFP)
- HSYNC de-jitter circuitry enables stable operation even when HSYNC contains jitter
- Low power standby mode
- Automatic entry into standby mode with clock detect circuitry
- Standard and Pb-free packages (see page 25).

ZiLOG

Totally Logical

Z86229

NTSC LINE 21 CCD DECODER

FEATURES

Devices	Speed (MHz)	Pin Count/ Package Types	Standard Temp. Range	On-Screen Display & Closed Captioning	Automatic Data Extraction: Program Rating	Automatic Data Extraction: Time of Day
Z86229	12	18-Pin DIP, SOIC	0°C to +70°C	Yes	Yes	Yes

- Complete Stand-Alone Line 21 Decoder for Closed-Captioned and Extended Data Services (XDS)
- Preprogrammed to Provide Full Compliance with EIA–608 Specifications for Extended Data Services
- Automatic Extraction and Serial Output of Special XDS Packets (Time of Day, Local Time Zone, and Program Blocking)
- Programmable XDS Filter for a Specific XDS Packet
- Cost-Effective Solution for NTSC Violence Blocking inside Picture-in-Picture (PiP) Windows
- Minimal Communications and Control Overhead Provide Simple Implementation of Violence Blocking, Closed Captioning, and Auto Clock Set Features
- Programmable, On-Screen Display (OSD) for Creating Full Screen OSD or Captions inside a Picture-in-Picture (PiP) Window
- User-Programmable Horizontal Display Position for easy OSD Centering and Adjustment
- I^2C Serial Data and Control Communication
- Supports 2 Selectable I^2C Addresses

GENERAL DESCRIPTION

Capable of processing Vertical Blanking Interval (VBI) data from both fields of the video frame in data, the Z86229 Line 21 Decoder offers a feature-rich solution for any television or set-top application. The robust nature of the Z86229 helps the device conform to the transmission format defined in the Television Decoder Circuits Act of 1990, and in accordance with the Electronics Industry Association specification 608 (EIA–608).

The Line 21 data stream can consist of data from several data channels multiplexed together. Field 1 consists of four data channels: two Captions and two Texts. Field 2 consists of five additional data channels: two Captions, two Texts, and Extended Data Services (XDS). The XDS data structure is defined in EIA–608. The Z86229 can recover and display data transmitted on any of these nine data channels.

The Z86229 can recover and output to a host processor via the I^2C serial bus. The recovered XDS data packet is further defined in the EIA–608 specification. The on-chip XDS filters in the Z86229 are fully programmable, enabling recovery of only those XDS data packets selected by the user. This functionality allows the device to extract the required XDS information with proper XDS filter setup for compatibility in a variety of TVs, VCRs, and Set-Top boxes.

In addition, the Z86229 is ideally suited to monitor Line 21 video displayed in a PiP window for violence blocking, CCD, and other XDS data services. A block diagram of the Z86229 is illustrated in Figure 1.

I^2C-bus controlled BTSC stereo/SAP decoder TDA9850

FEATURES

- Quasi alignment-free application due to automatic adjustment of channel separation via I^2C-bus
- Dbx noise reduction circuit
- Dbx decoded stereo, Second Audio Program (SAP) or mono selectable at the AF outputs
- Additional SAP output without dbx, including de-emphasis
- High integration level with automatically tuned integrated filters
- Input level adjustment I^2C-bus controlled
- Alignment-free SAP processing
- Stereo pilot PLL circuit with ceramic resonator, automatic adjustment procedure for stereo channel separation, two pilot thresholds selectable via I^2C-bus
- Automatic pilot cancellation
- Composite input noise detector with I^2C-bus selectable thresholds for stereo and SAP off
- I^2C-bus transceiver.

NJW1144 AUDIO PROCESSOR

GENERAL DESCRIPTION

The NJW1144 is a sound processor includes all of the functions required to process the audio signal for TV, such as tone control, balance, volume, mute, and AGC functions.

Also the NJW1144 performs BBE sound enhancement and SRS 3D Stereo. The BBE regenerates high definitive and nearly real sound, and SRS 3D Stereo regenerates 3D surround sound with only two speakers.

All of the internal stats and variables are controlled by I^2C BUS interface.

FEATURES

- Operating Voltage 8 to 13V
- I^2C BUS Interface
- BBE Sound Enhancement (Low Boost and High Boost: 15dB max.)
- Internal 6 Input Audio Selectors and Monitor Output
- The AGC circuit reduces volume difference among input sources.
- Variable AGC Compression Level via I^2C (4-levels)
- SRS 3D Stereo and Simulated Stereo
- Variable Surround Effect Level via I^2C
- Low Noise VCA
- Bi-CMOS Technology
- Package Outline SOP40

0. Warnings and Cautions

- ✓ WARNING indicates hazards that may lead to death or injury if ignored.
- ✓ CAUTION indicates hazards that may lead to injury or damage to property if ignored.

1) This product uses a high voltage (450 V max.). Do not touch the circuitry of this product with your hands when power is supplied to the product or immediately after turning off the power. Be sure to confirm that the voltage is dropped to a sufficiently low level.

2) Do not supply a voltage higher than that specified to this product. This may damage the product and may cause a fire.

3) Do not use this product in locations where the humidity is extremely high, where it may be splashed with water, or where flammable materials surround it. Do not install or use the product in a location that does no satisfy the specified environmental conditions. This may damage the product and may cause a fire.

4) If a foreign substance (such as water, metal, or liquid) gets inside the product, immediately turn off the power. Continuing to use the products it may cause fire or electric shock.

5) If the product emits smoke, an abnormal smell, or makes an abnormal sound, immediately turn off the power. If noting is displayed or if the display goes out during use, immediately turn off the power. Continuing to use the product as it is may cause fire or electric shock.

6) Do not disconnect or connect the connector while power to the product is on. It takes some time for the voltage to drop to a sufficiently low level after the power has been turned off. Confirm that the voltage has dropped to a safe level before disconnecting or connecting the connector. Otherwise, this may cause fire, electric shock, or malfunction.

7) Do not pull out or insert the power cable from/to an outlet with wet hands. It may cause electric shock.

8) Do not damage or modify the power cable. It may cause fire or electric shock.

9) If the power cable is damaged, or if the connector is loose, do not use the product; otherwise, this can lead to fire or electric shock.

10) If the power connector or the connector of the power cable becomes dirty or dusty, wipe it with a dry cloth. Otherwise, this can lead to fire.

❑ General

1) Do not place this product in a location that is subject to heavy vibration, or on an unstable surface such as an inclined surface. The product may fall off or fall over, causing injuries.

2) When moving the product, be sure to turn off the power and disconnect all the cables. While moving the product, watch your step. The product may be dropped or fall, leading to injuries of electric shock.

3) Do not place this product in a location that is subject to heavy vibration, or on an unstable surface such as an inclined surface. The product may fall off or fall over, causing injuries.

4) Before disconnecting cable from the product, be sure to turn off the power. Be sure to hold the connector when disconnecting cables. Pulling a cable with excessive force may cause the core of the cable to be exposed or break the cable, and this can lead to fire or electric shock.

5) This product should be moved by two or more persons. If one person attempts to carry this product alone, he/she may be injured.

6) This product contains glass. The glass may break, causing injuries, if shock, vibration, heat, or distortion is applied to the product.

7) The temperature of the glass surface of the display may rise to 80°C or more depending on the conditions of use. If you touch the glass inadvertently, you may be burned.

8) Do not poke or strike the glass surface of the display with a hard object. The glass may break or be scratched. If the glass breaks, you may be injured.

9) If you glass surface of the display breaks or is scratched, do not touch the broken pieces or the scratches with bare hands. You may be injured.

10) Do not place an object on the glass surface of the display. The glass may break or be scratched.

❑ USE

1) Because this product uses a high voltage, connecting or disconnecting the connectors while power is supplied to the product may cause malfunctioning. Never connect or disconnect the connectors while the power is on. Immediately after power has been turned off, a residual voltage remains in the product. Be sure to confirm that the voltage has dropped to a sufficiently low level.

2) Watching the display for a long time can tire the eyes. Take a break at appropriate intervals.

3) PDP 's brightness and contrast ratio is lower than that of the CRT. The picture is dimmer with surrounding light and better for viewing in dark condition.

4) Do not cover or wrap the product with a cloth or other covering while power is supplied to the product.

5) Before turning on power to the product, check the wiring of the product and confirm that the supply voltage is within the rated voltage range. If the wiring is wrong or if a voltage outside the rated range is applied, the product may malfunction or be damaged.

6) Do not store this product in a location where temperature and humidity are high. This may cause the product to malfunction. Because this product uses a discharge phenomenon, it may take time to light (operation may be delayed) when the product is used after it has been stored for a long time. In this case, it is recommended to light all cells for about 2hours (aging).

7) If the glass surface of the display becomes dirty, wipe it with a soft cloth moistened with a neutral detergent. Do not use acidic or alkaline liquids, or organic solvents.

8) Do not tilt or turn upside down while the module package is carried, the product may be damaged.

9) This product is made from various materials such as glass, metal, and plastic. When discarding it, be sure to contact a professional waste disposal operator.

❑ Repair and Maintenance

Because this product combines the display panel and driver circuits in a single module, it cannot be repaired or maintained at user's office or plant. Arrangements for maintenance and repair will be determined later

1. GENERAL DESCRIPTION

❑ DESCRIPTION

The PDP42V6#### is a 42-inch 16:9 color plasma display module with resolution of 852(H) × 480(V) pixels. This is the display device which offers vivid colors with adopting AC plasma technology by LG Electronics Inc.

❑ FEARURES

High peak brightness (1000cd/m^2 Typical) and high contrast ratio (3000:1 Typical) enables user to create high performance PDP SETs.

❑ APPLICATIONS

- ✓ Public information display
- ✓ Video conference systems
- ✓ Education and training systems

❑ ELECTRICAL INTERFACE OF PLASMA DISPLAY

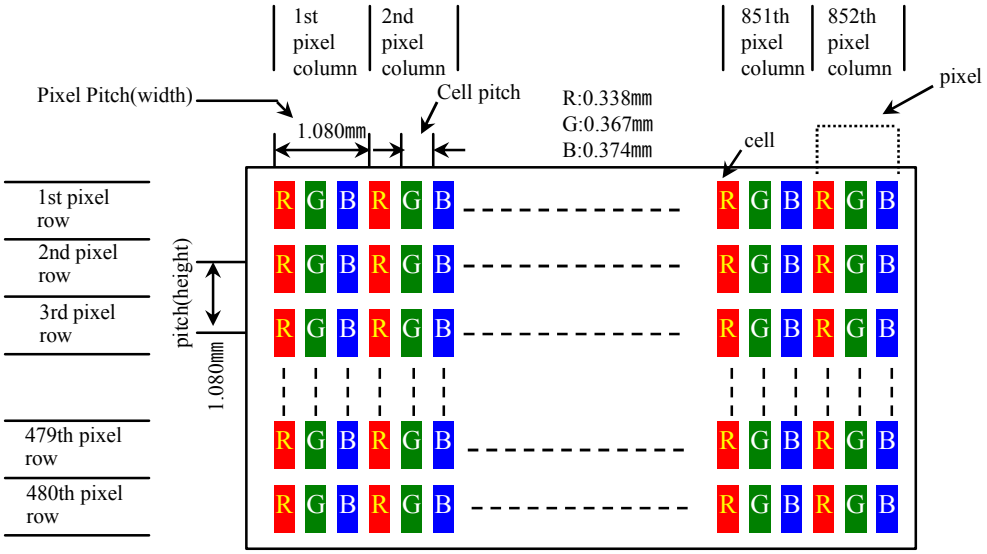
The PDP42V6#### requires only 8bits of digital video signals for each RGB color.
In addition to the video signals, six different DC voltages are required to operate the display.
The PDP42V6#### is equipped with P-CUBE function which analyzes display signals to optimize system control factor for showing the best display performance.

❑ GENERAL SPECFICATIONS

- ✓ Model Name : PDP42V6#### (42V6#### Model)
- ✓ Number of Pixels : 852(H) × 480(V) (1pixel=3 RGB cells)
- ✓ Pixel Pitch : 1080㎛ (H) × 1080㎛ (V)
- ✓ Cell Pitch : 367㎛ (H) × 1080㎛ (V) (Green Cell basis)
- ✓ Display Area : 920.1(H) × 518.4(V) ±0.5mm
- ✓ Outline Dimension : 1005(H) × 597(V) × 61(D)±1mm
- ✓ Pixel Type : RGB Closed type
- ✓ Number of Gradations : (R)256 × (G)256 × (B)256 (16.7 Mega colors)
- ✓ Weight : 14.8 Kg ± 0.5 Kg (Net 1EA)
  111 Kg ± 5 Kg (5EA/1BOX)
- ✓ Aspect Ratio : 16:9
- ✓ Peak Brightness : Typical 1000cd/㎡ (1/25 White Window)
- ✓ Contrast Ratio : Average 60:1 (In a bright room with 150Lux at center)
  : Typical 3000:1 (In a dark room 1/25 White Window pattern at center)
- ✓ Power Consumption : Typical 220 W (Full White)
- ✓ Life-time : more than 60,000 Hours of continuous operation

☞ Life-time is defined as the time when the brightness level becomes half of its initial value.

✓ Display Dot Diagram

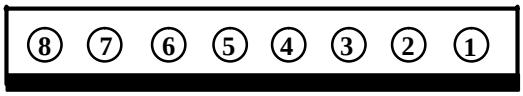


7. CONNECTORS and CONNECTIONS

❑ Power Input Connector

➢ Connector P3001 Pin Assignment

Pin No.	Symbol	Pin No.	Symbol
1	Vs	5	GND
2	Vs	6	Va
3	nc	7	GND
4	GND	8	+5V



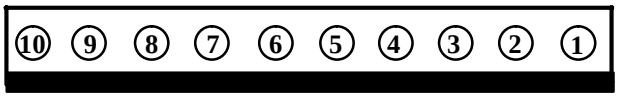
1-1123723-8 Pin numbers
(Top View, viewed from the pin connection side)

✓ Module side connector : 1-1123723-8 (Header)
✓ Mating Connector : 1-1123722-8 (Housing)
✓ Connector Supplier : AMP

➢ Connector P2005 Pin Assignment

Pin No.	Symbol	Pin No.	Symbol
1	VS	6	GND
2	VS	7	GND
3	VS	8	GND
4	nc	9	nc
5	GND	10	nc

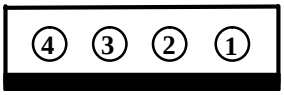
✓ Module side connector : 1-1123723-10 (Header)
✓ Mating Connector : 1-1123722 –10 (Housing)
✓ Connector Supplier : AMP



1-1123723-10 Pin numbers
(Top View, viewed from the pin connection side)

➢ Connector P2006 Pin Assignment

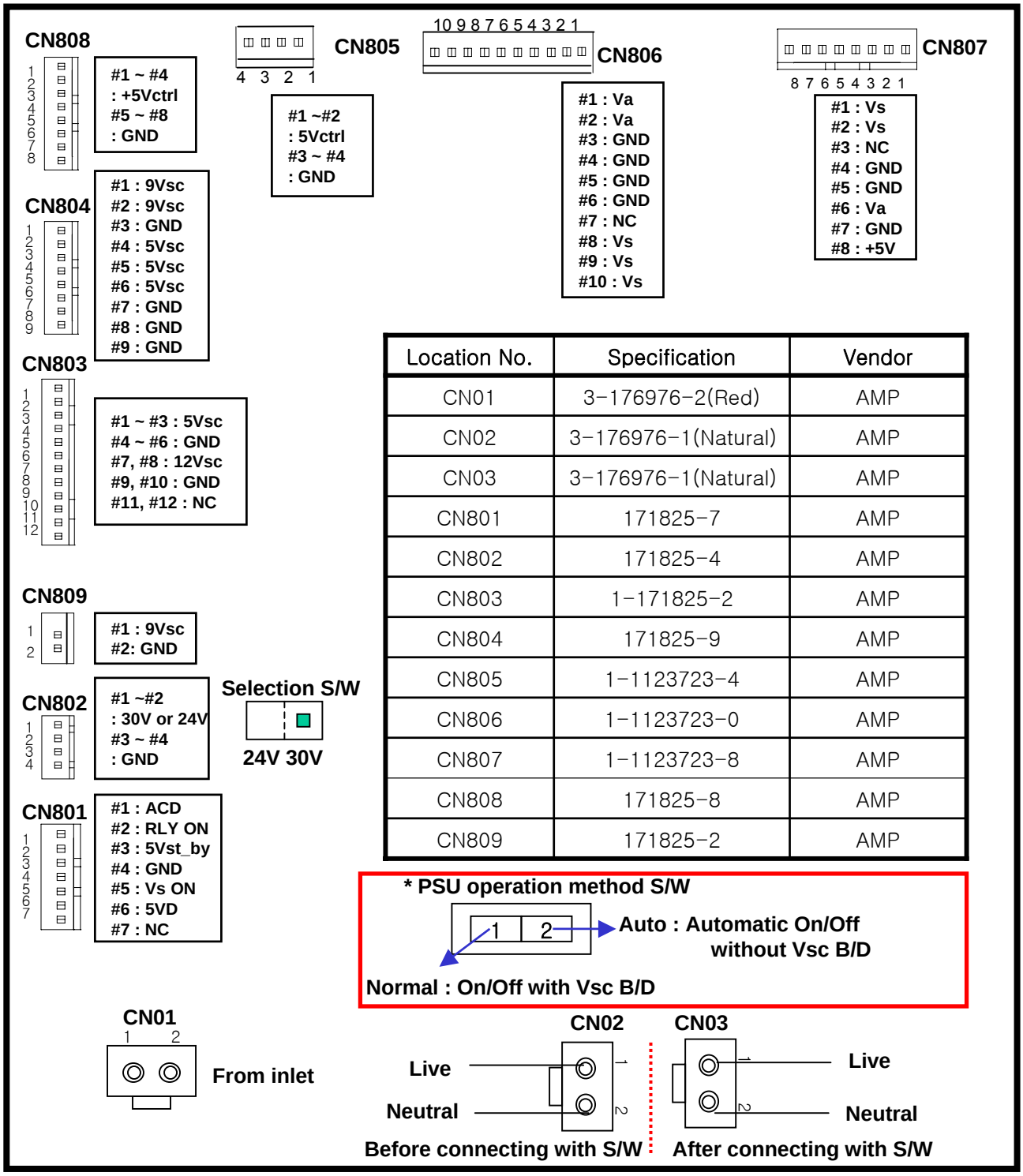
Pin No.	Symbol	Pin No.	Symbol
1	GND	3	5V
2	GND	4	5V



1-1123723-4 Pin numbers
(Top View, viewed from the pin connection side)

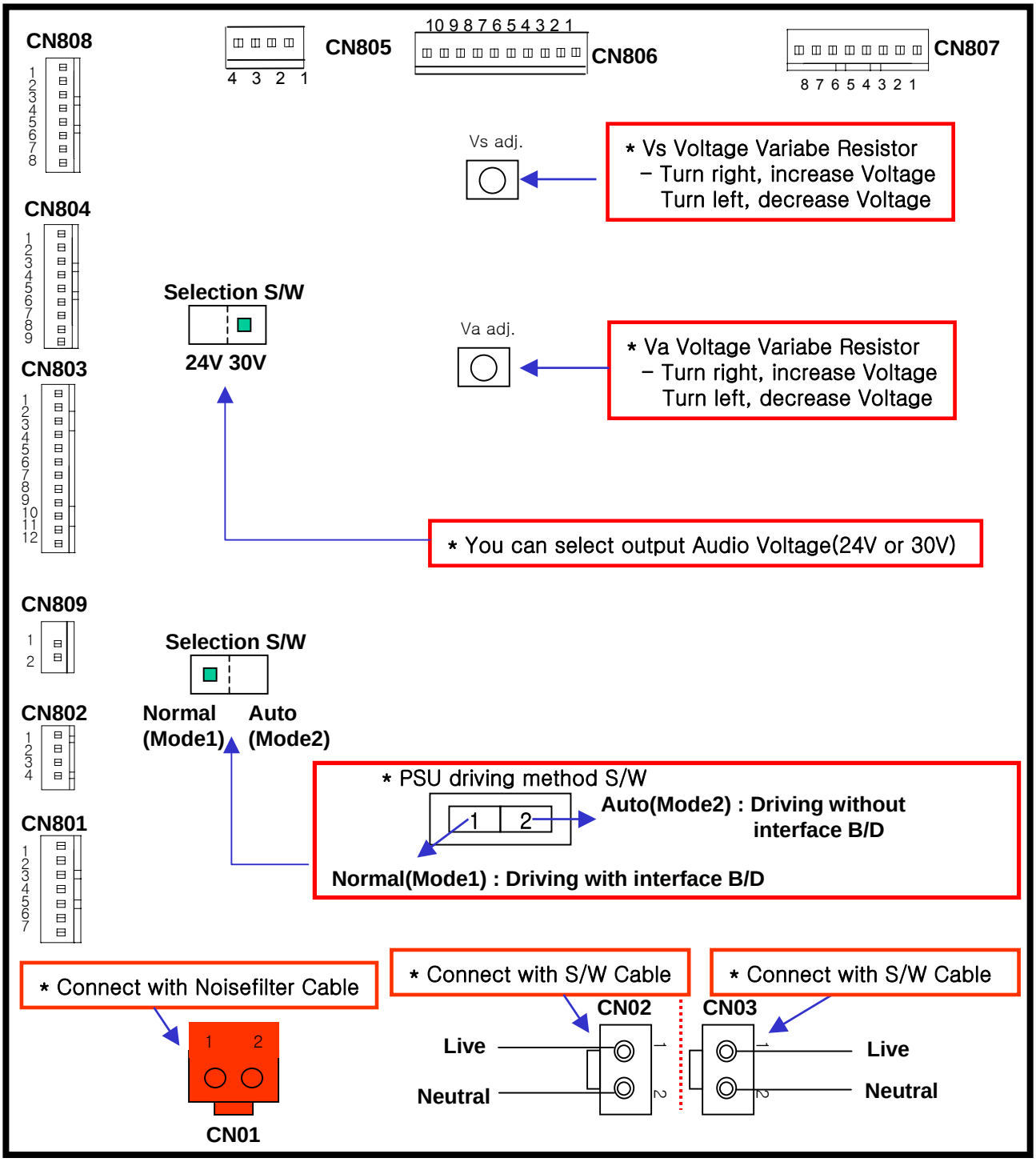
✓ Module side connector : 1-1123723-4 (Header)
✓ Mating Connector : 1-1123722-4 (Housing)
✓ Connector Supplier : AMP

8. Input/Output pin assignment & specification



Location No.	Specification	Vendor
CN01	3-176976-2(Red)	AMP
CN02	3-176976-1(Natural)	AMP
CN03	3-176976-1(Natural)	AMP
CN801	171825-7	AMP
CN802	171825-4	AMP
CN803	1-171825-2	AMP
CN804	171825-9	AMP
CN805	1-1123723-4	AMP
CN806	1-1123723-0	AMP
CN807	1-1123723-8	AMP
CN808	171825-8	AMP
CN809	171825-2	AMP

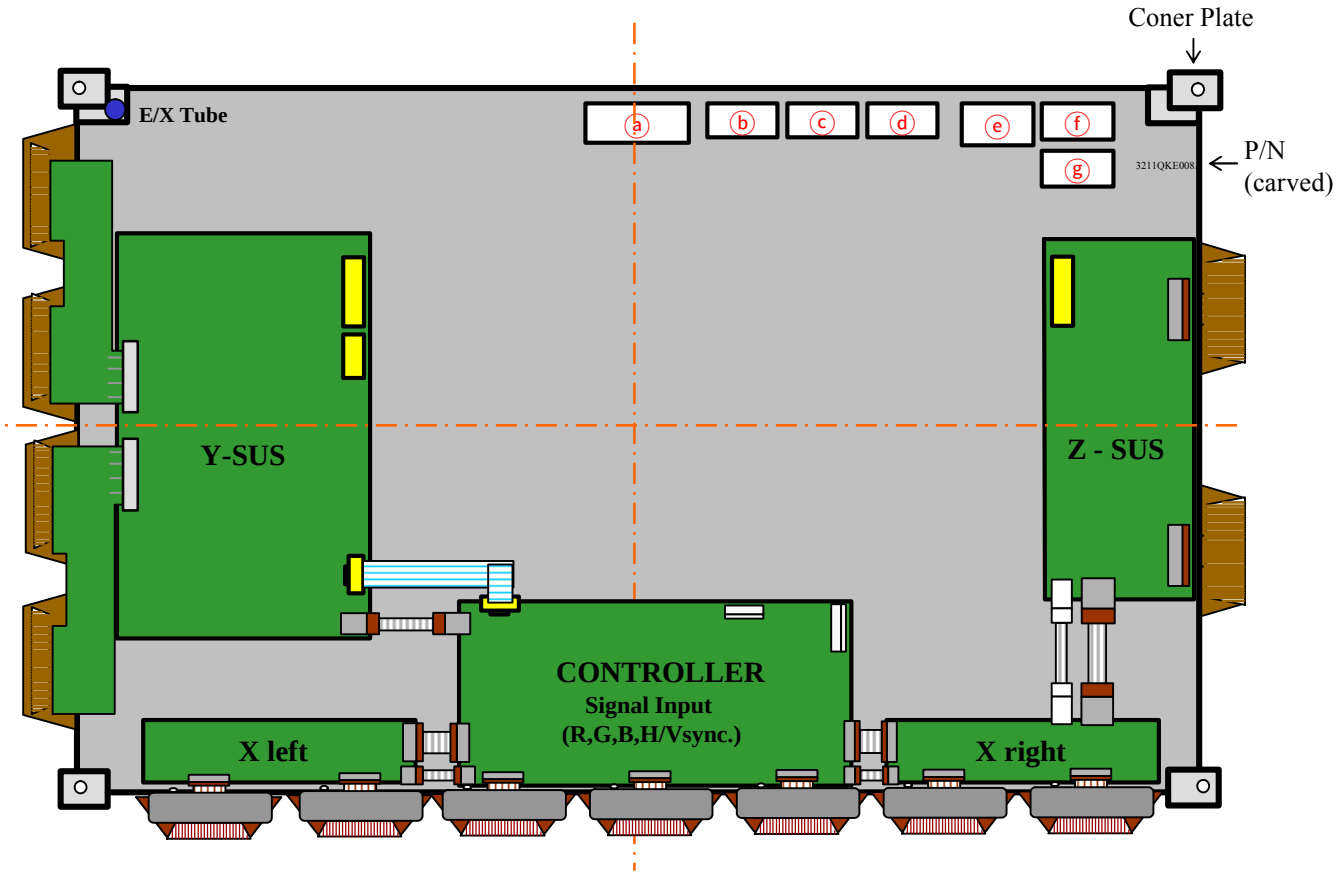
9. Adjustment detail



※ The color of CN01 is red.(The color of CN02, CN03 are natural.)

8. LABEL

❑ LABEL Sticking Position



❑ Identification Label : LABEL ⓐ

① Model Name
② Bar Code (Code 128, Contains the manufacture No.)
③ Manufacture No.
④ The trade name of LG Electronics
⑤ Manufactured date (Year & Month)
⑥ Manufactured place

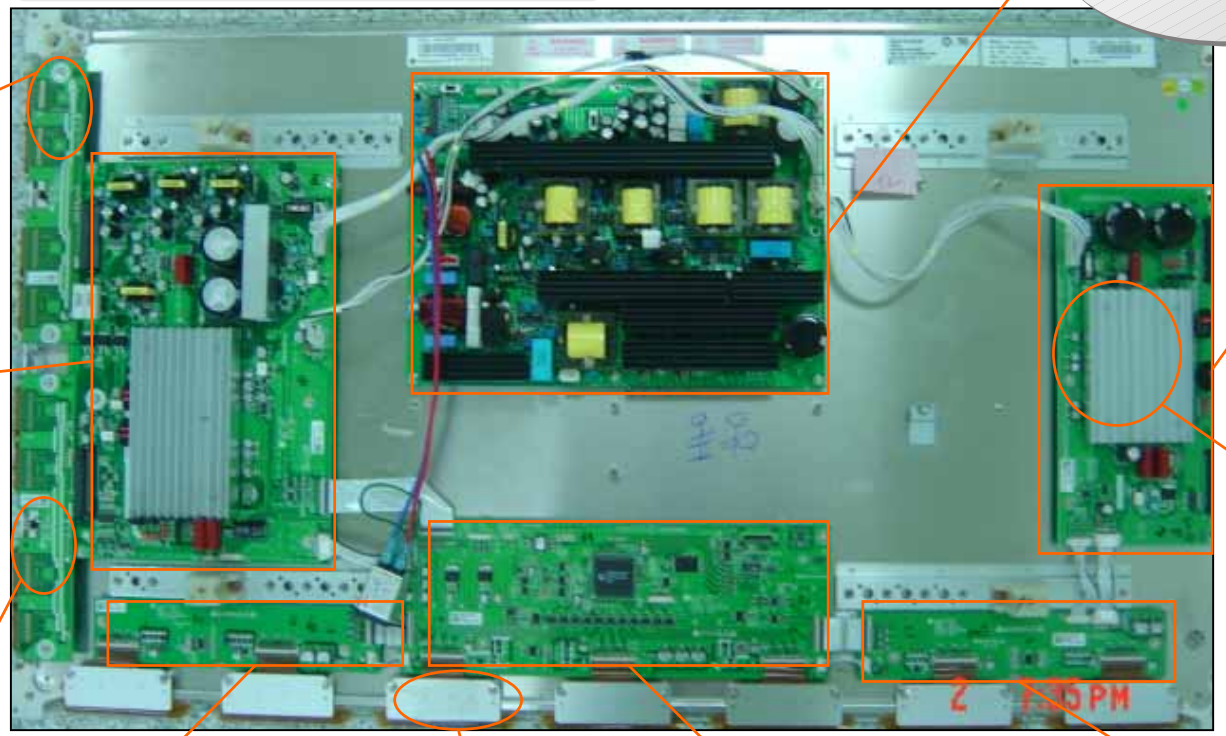
Trouble Shooting Manual of PDP Module

- Introduction
- Precautions
- Basic
- Trouble shooting

1. Introduction

COMPOSITION OF PDP BOARDS

- ***42” V6 MODEL.***



PSU

Z-SUS B/D

IPM

X-RIGHT B/D

CONTROL B/D

COF

X-LEFT B/D

Y-DRIVE BOTTOM

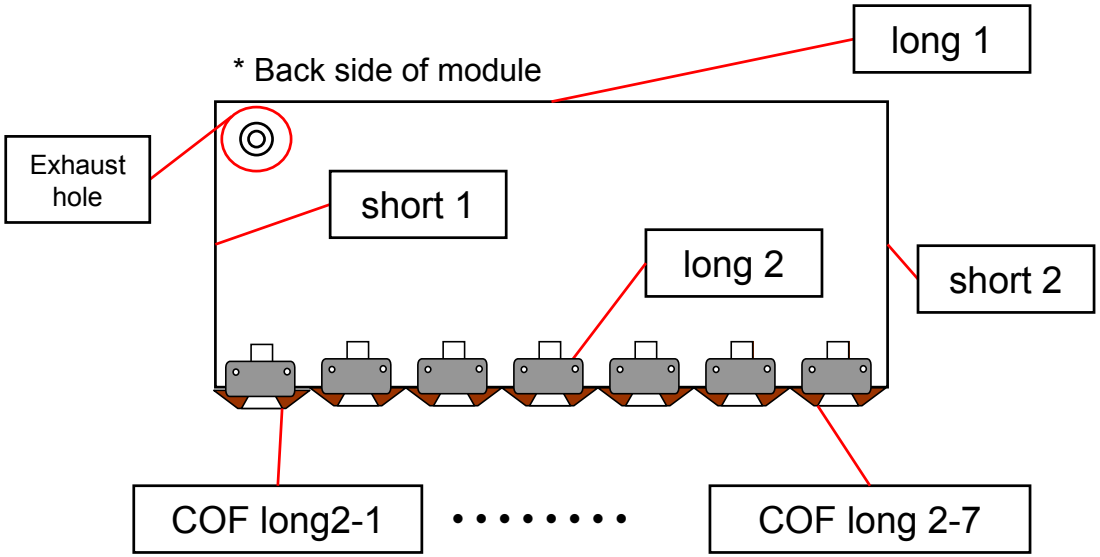
Y-SUS B/D

Y-DRIVE TOP

1. Introduction

Definitions

■ **Definition of MODULE position**

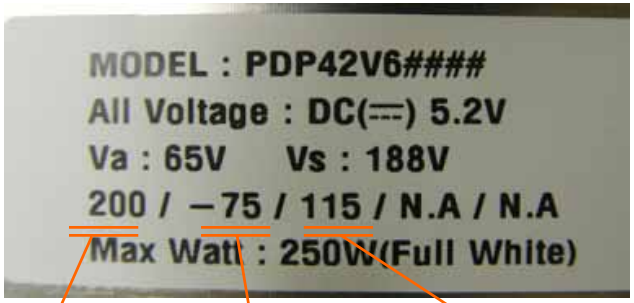


■ **Identification label**

① Model Name
② Bar Code (Code 128, Contains the manufacture No.)
③ Manufacture No.
④ The trade name of LG Electronics
⑤ Manufactured date (Year & Month)
⑥ The place Origin
⑦ Model Suffix

1. Introduction

■ **Voltage label (Attached on back side of module)**



■ **Part No. label (Attached on board)**

■ **COF serial No. label (attached on COF)**

1. Introduction

■ **Terms of defect**

Term	Appearance
Add short (line on)	
Add open (line off)	
Sus short (line on)	
Sus open (line off)	

2. Precaution

Safety precautions

Be sure to read this before service. When using/ handling this PDP module, Please pay attention to the below warning and cautions.

1. Before repairing there must be a preparation for 10 min.
2. Do not impress a voltage that higher than represented on the product.
3. Since PDP module uses high voltages, Be careful a electric shock
   and after removing power some current remains in drive circuit.
   so you can touch circuit after 1 min.
4. Drive circuits must be protected from static electricity.
5. The PDP module must be Moved by two man.
6. Be careful with short circuit of PDP boards when measuring any voltages.

Before request service

1. Check panel surface and appearance of B/D.
2. Check the model label. Whether it is boards of same model with label.
3. Before requesting Service, please inform us a detail defect phenomenon and history of module.
   it can be helpful to us for a smooth sevice.

Ex) COF long 2-1 fail ,address 1 line open, Y b/d problem , mis-discharge.

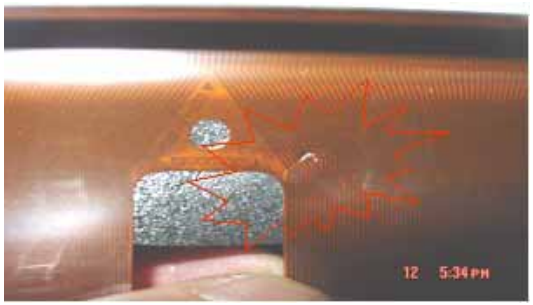
2. Precaution

Handle with care (COF)

COF is the most important component in the PDP module.

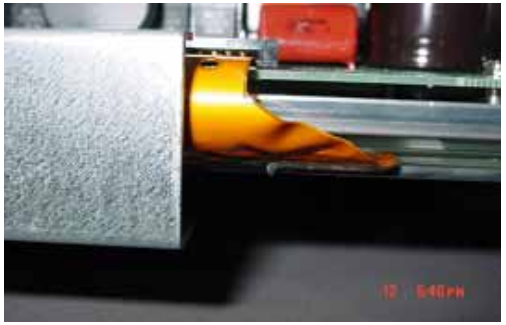
Even a little imperfection of COF can make a serious screen problem.

SCRATCHING

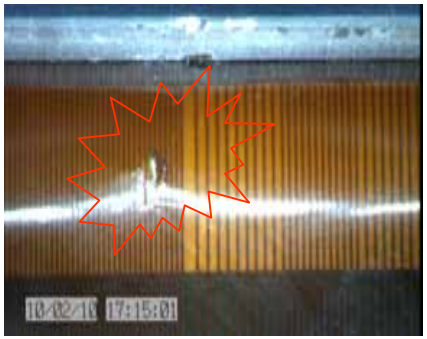


TEARING

BEING PUSHED



BENDING

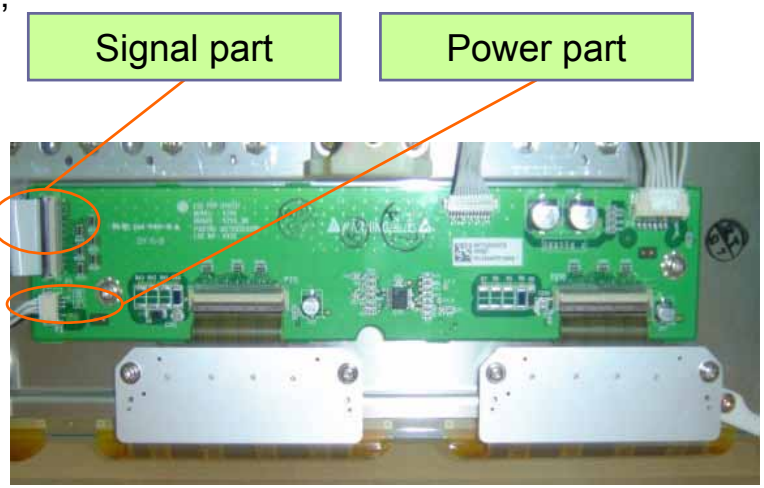


CHOPING

1. X B/D

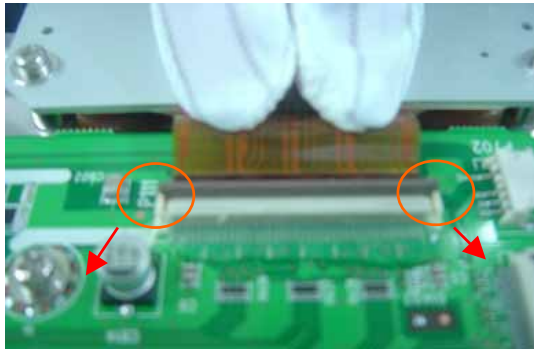
: receiving LOGIC signal from CONTROL B/D and make ADDRESS PULSE(generates Address discharge)by ON/OFF operation, and supplies this waveform to COF(data)

X LEFT B/D

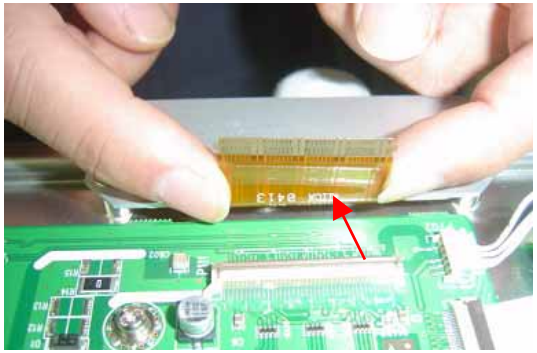


X RIGHT B/D

<COF Separating>



Lift up lock as shown in narrow.



Pull COF
as shown in narrow.

2. Z sustain B/D

: make SUSTAIN PULSE and ERASE PULSE that generates SUSTAIN discharge in panel by receiving LOGIC signal from CONTROL B/D.

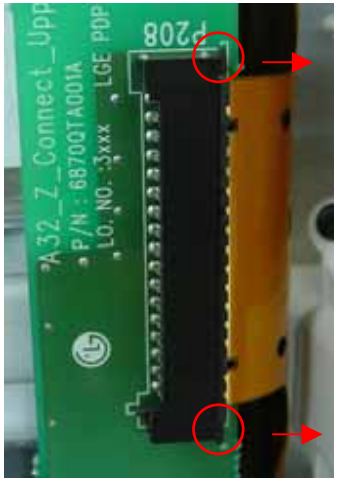
this waveform is supplied to panel through FPC(Z).

*composed with IPM,FET,DIODE, electrolytic capacitor ,E/R coil.

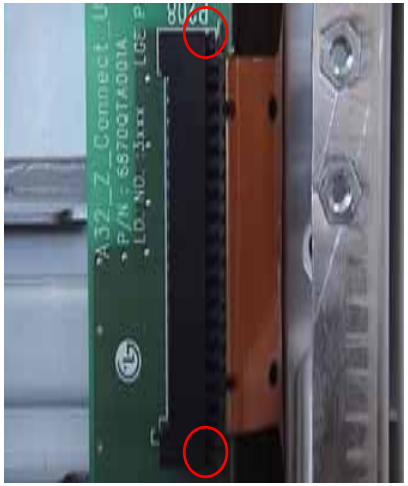
* IPM (Intelligent Power Module)

E/R(Energy recovery)

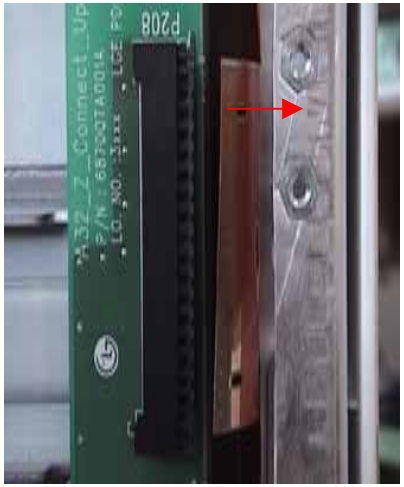
<FPC Separating>



Separate the fixed Screw of Z-Board.
Pull out Lock as shown in arrow.



Condition in Lock part is pulled



Pull FPC Connector
as shown in arrow.

3. Y drive B/D

1) This is a path to supply SUSTAIN ,RESET waveform which made from Y SUSTAIN B/D to panel through SCAN DRIVER IC.

2) Supply a wave form that select Horizontal electrode (Y SUSTAIN electrode) sequentially.

- potential difference is 0V between GND and Vpp of DRIVER IC in SUSTAIN period.
- being generated potential difference between GND and Vpp only in SCAN period.

* In case of 42” V6 use DRIVER IC IC 8 EA (TOP, BOTTOM: each 4EA)

4. Y sustain B/D

: generates SUSTAIN,RESET waveform, Vsc(SCAN)voltage.
and supplies it Y DRIVER B/D.

* Composed with IPM,DIODE, electrolytic capacitor ,FET.

5. Control Board

: creates signal processing (Contour noise,reduction ISM,..)
and an order of many FET on/off of each DRIVER B/D with
R,G,B each 8bit input.

* Use 3.3V/5V 2 kinds of power .

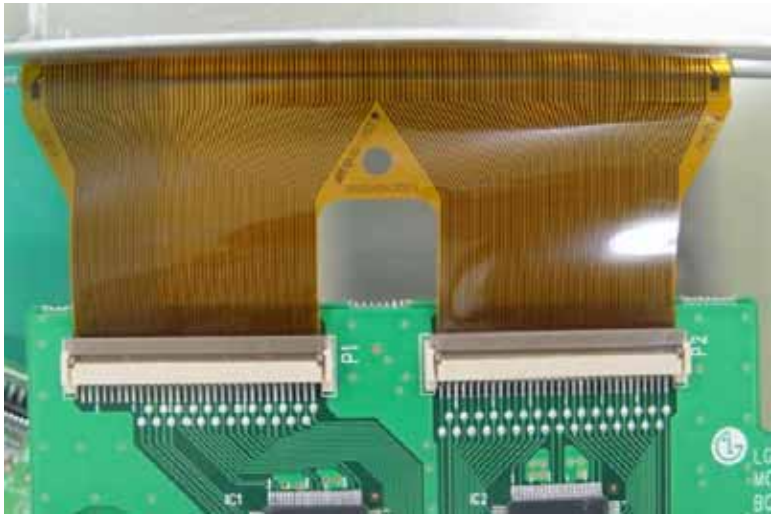
6. DC/DC Converter part

: Being impressed 5V, Va ,Vs,
DC/DC converter makes
5V,Va,Vs,Vset_up,Vsc
which is essential for each B/D.
There is no DC/DC B/D in
model 40 ″ /42 ″ (1 POWER B/D).
* 50 ″ 60 ″ embedded DC/DC B/D
separately because of high power
consumption.

7. FPC (Flexible Printed Circuit)

: supply a driving waveform to PANEL by connecting a PAD electrode of PANEL with PCB(Y and Z).

* there is two type of this for Y B/D. One is single-sided, another is double-side. These are having pattern on it
* for Z B/D, there is no pattern , single-sided, and Beta type(all of copper surface).



8. FFC (Flat Flexible Cable)

: for connecting a Logic signal between B/D and B/D.

*There is 0.5mm pitch,50pin type
1mm pitch ,30pin type.

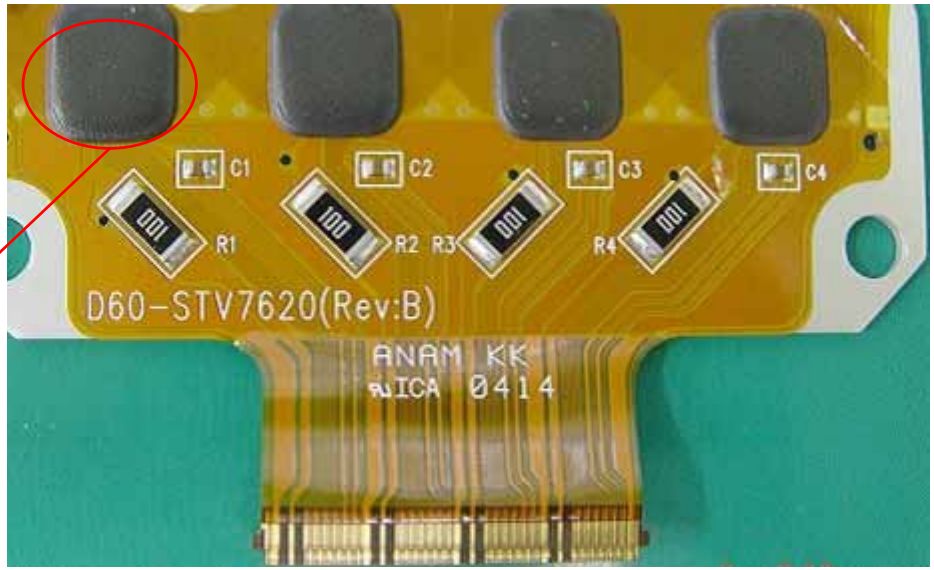
9. COF (Chip On Film)

: supply a waveform which made from X B/D to panel and select a output pin that is controlled by COF when be on or off.

96 output pin per IC.

— the more the resolution higher, the less spare space where can set IC on it in B/D. without using IC PACKAGE, we can use a BARE IC , so we can get IC with LOW COST

— because we do not solder IC on PCB directly, a soldering defect rate decrease.



Bare IC

* composition

1) FPC + Heat /Sink

⇒ FPC for COF must have a Low Spec decline with getting damp

2) CHIP resistor + CHIP CAPACITOR

3) BARE IC (STV7610A/WAF) + GOLD WIRE/AL WIRE

4) EPOXY MOLDING

* 42 V6 COF is the same as 42V5.

10. IPM(Intelligent Power Module)

: composition

HEATSINK,CAPACITOR

DIODE

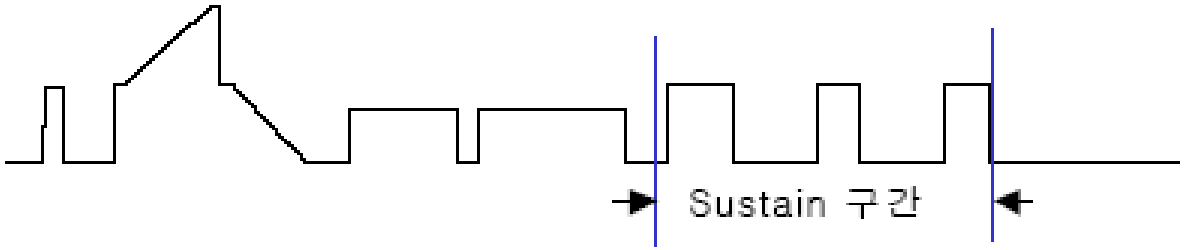
IC LINEAR

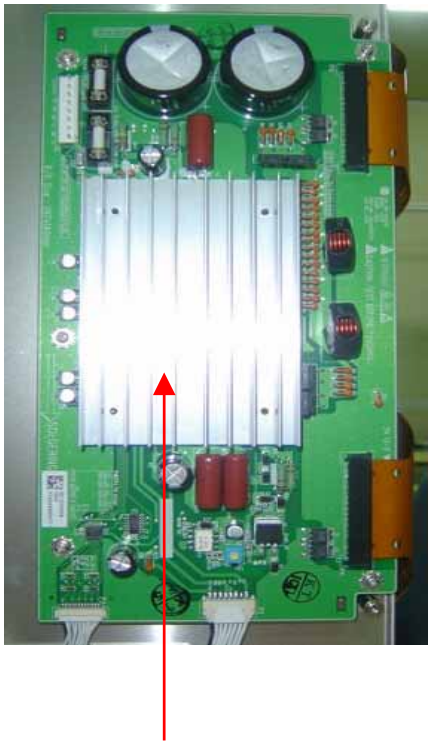
RESISTORTANSISTOR,FETS.

: description

Attached at Z B/D and Y B/D, make Sustain waveform.

Sustainer : supply a square wave to panel to make a video.

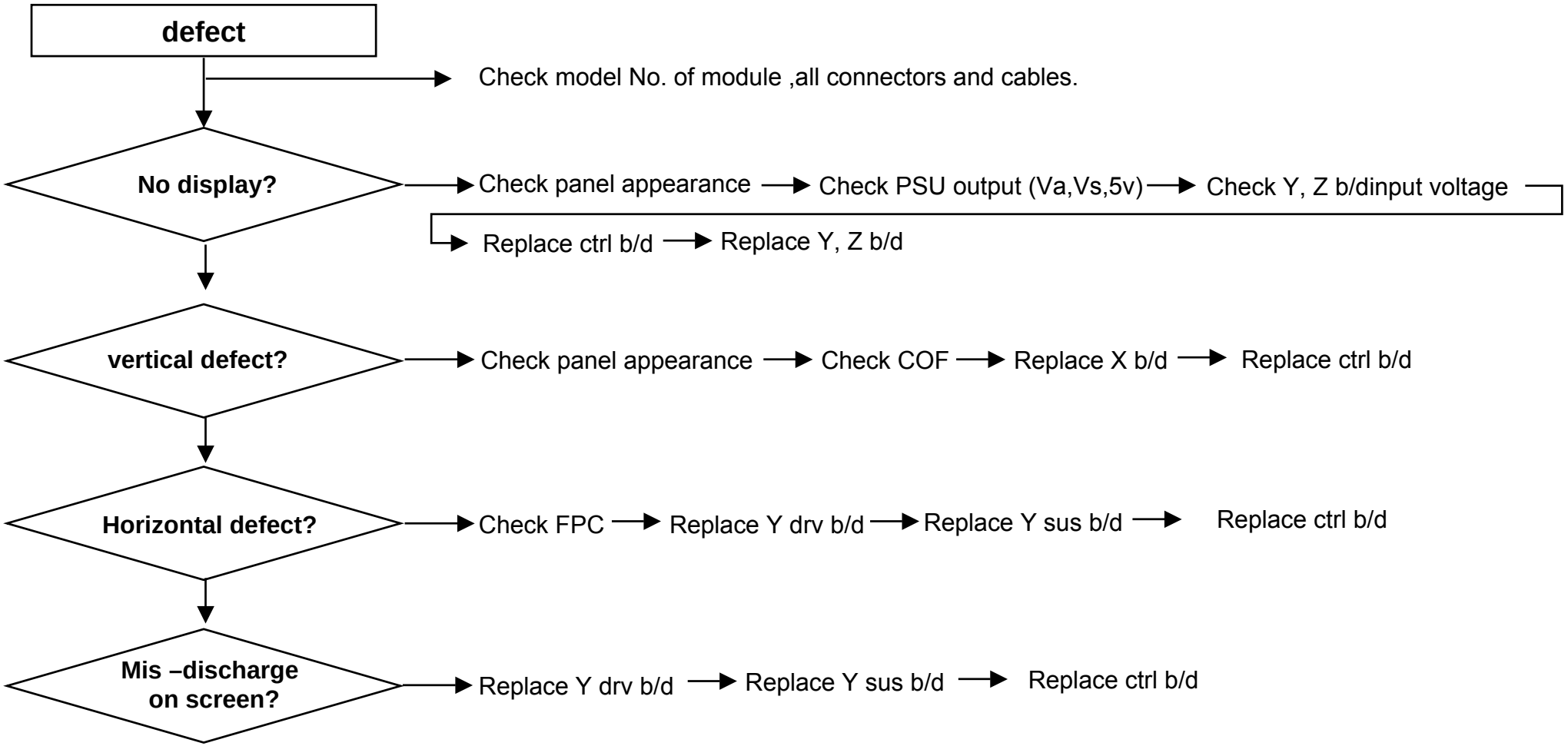




IPM

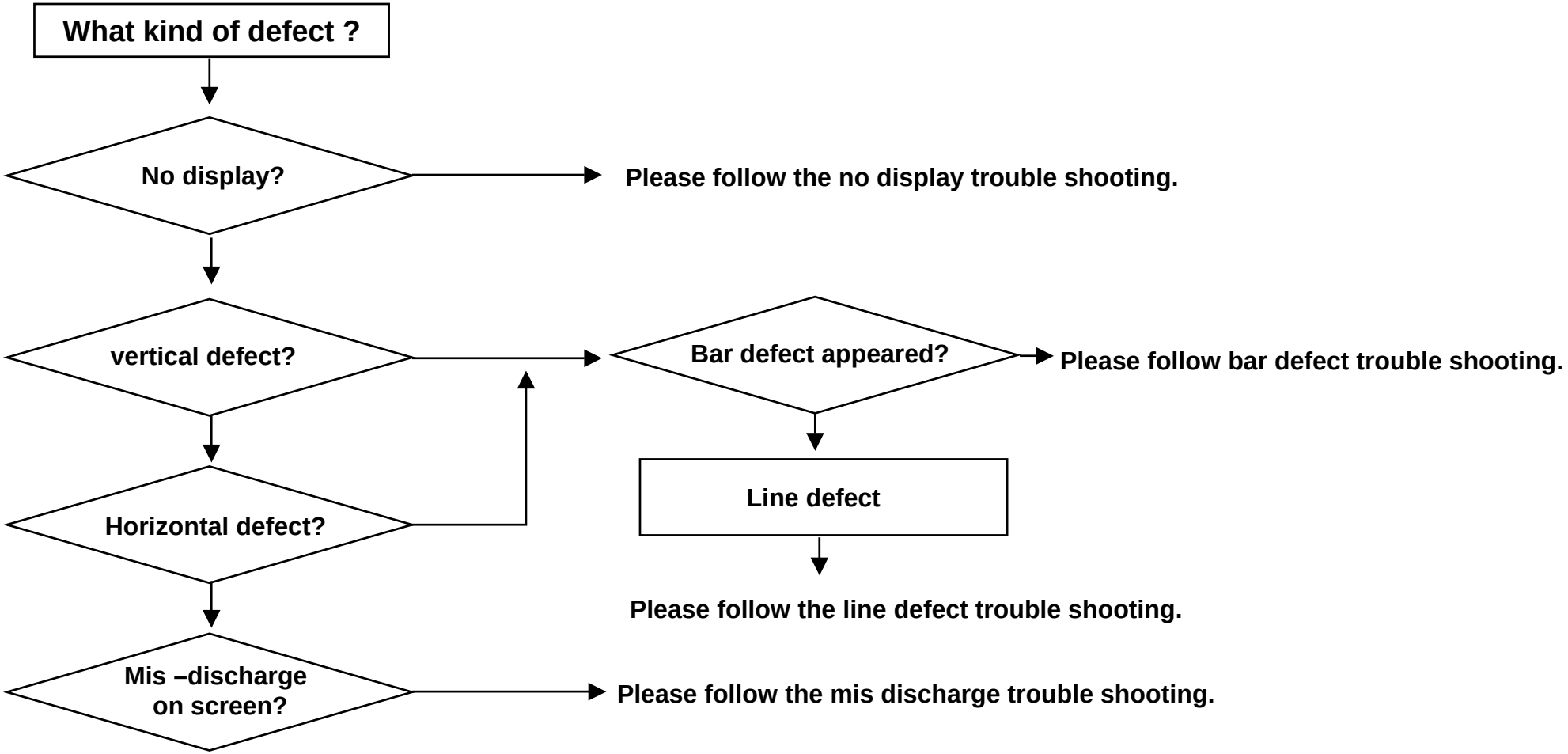
4. Trouble shooting.

Fast check up



4. Trouble shooting.

Logical judgment


What kind of defect ?
No display?
Please follow the no display trouble shooting.
vertical defect?
Bar defect appeared?
Please follow bar defect trouble shooting.
Line defect
Horizontal defect?
Please follow the line defect trouble shooting.
Mis –discharge on screen?
Please follow the mis discharge trouble shooting.

4. Trouble shooting.

No display

Check each section with following method if there is problem, replace or repair that part.

If not go to the next section.

1. Connector

Confirm every Connector (PSU, Y-SUS, CTRL, Z-SUS)

⇒ module may not be normal by mis-connection which can not send signal and power.

Also Mis connection for a long time has a specific b/d failed.

CTRL B/D + Y-SUS

CTRL B/D + Z-SUS

CTRL B/D + X-B/D

Signal input(LVDS)

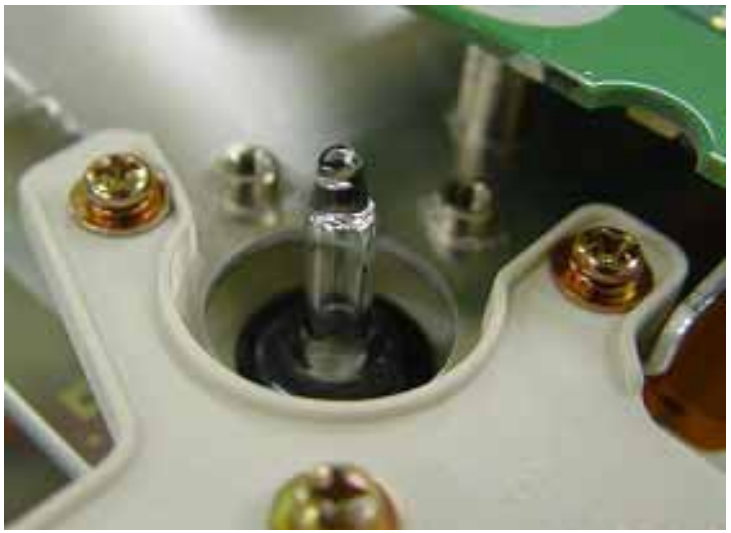
2. Exhaust tip Crack

Confirm exhausting Tip and find Crack with naked eyes to check vacuum state.

If there is problem replace the module .

⇒ in case of vacuum breakdown, module makes a shaking noise because of inside gas ventilation.

(there may be a small crack which could not see with naked eyes. And this noise is different from Capacitor noise.)



NORMAL

CRACKED

4. Trouble shooting.

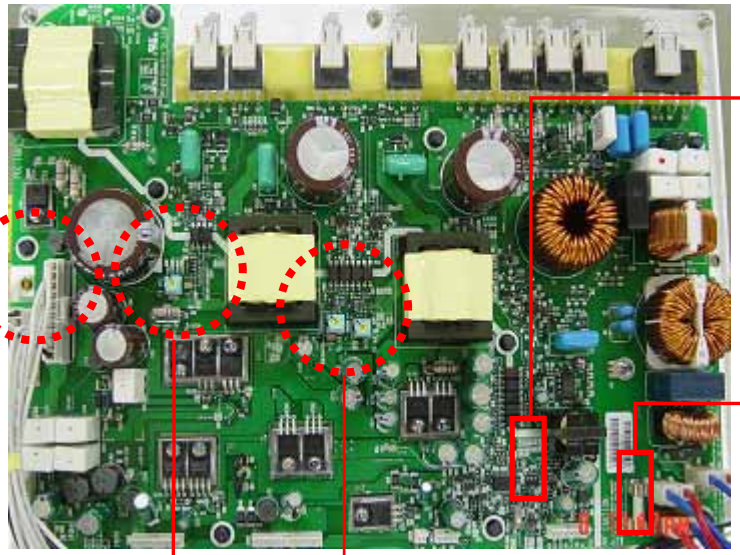
3. PSU(Power Supply Unit)

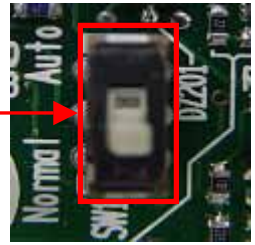
1. Check each unit part of PSU inside with naked eyes.
   (capacitor, FET, a kind of IC, resistor)
2. Check FUSE and SW1 (on Normal).
3. Check Output voltage which is converted from AC V to DC V.
   voltage Check (5V, Va, Vs)

※ When PSU Protection occurred. Check Short between Y-SUS, Z-SUS B/D .

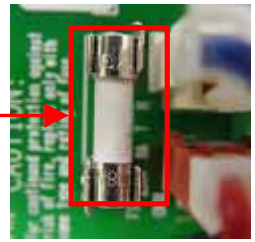
Confirm input voltage → if not same → **Adjust voltages**

Multi-meter Touch point
(5V, Va ,Vs must accord with Module Label)

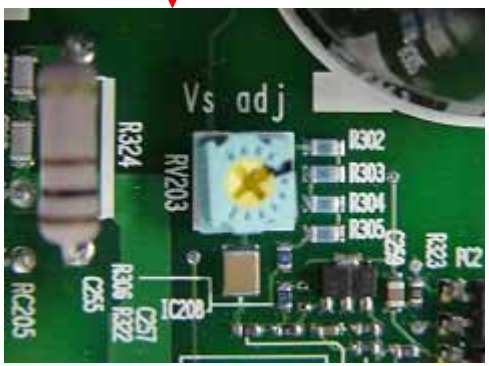




SW1 Normal



Fuse open check



Vs Voltage ADJ
(Vs : About 180 ~195 V)

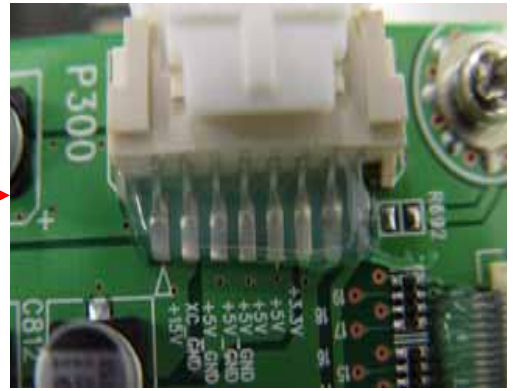
Va, 5V(VCC) Voltage ADJ
■ Va : About 55 ~65 V
■ 5V(VCC) : 5V~5.5V)

4. Trouble shooting.

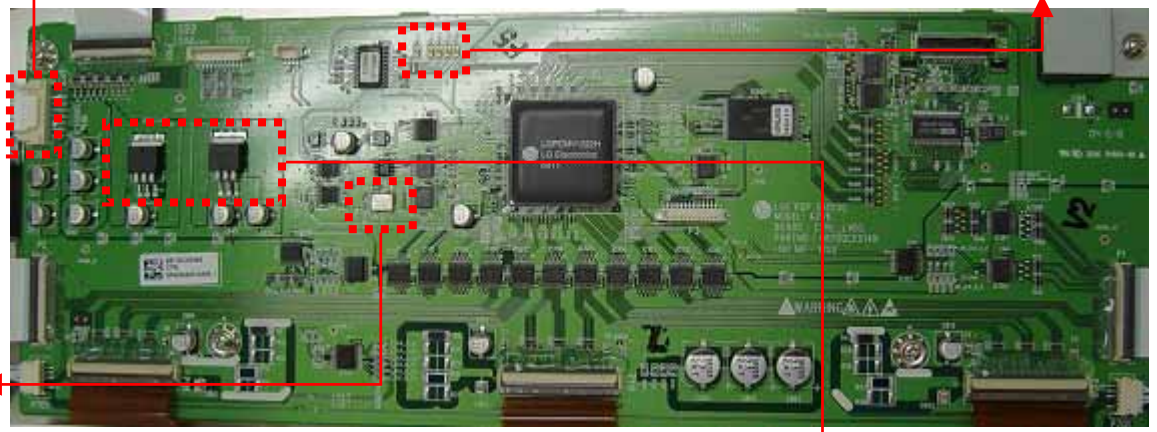
4. Ctrl B/D

1. Confirm LED D17(flashing) ,13 lighting
2. If not CHECK OSC X1 output.
3. Check CTRL input voltage
   (CONNECTOR P300)
4. CHECK 3.3V, 5V,15V.
5. Check IC 11 3.3V
   IC 3 2.5V

Input voltage



Diode



OSC(X1)

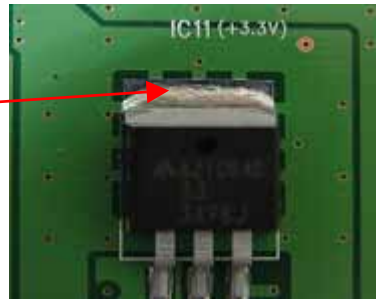
Probe
Touching
point

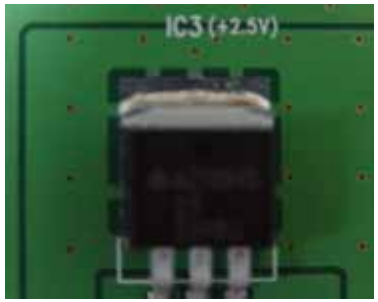
Check oscillating state.
(normal 100 MHZ)
Be careful with physical shock.

Check IC 11,13

DMM +

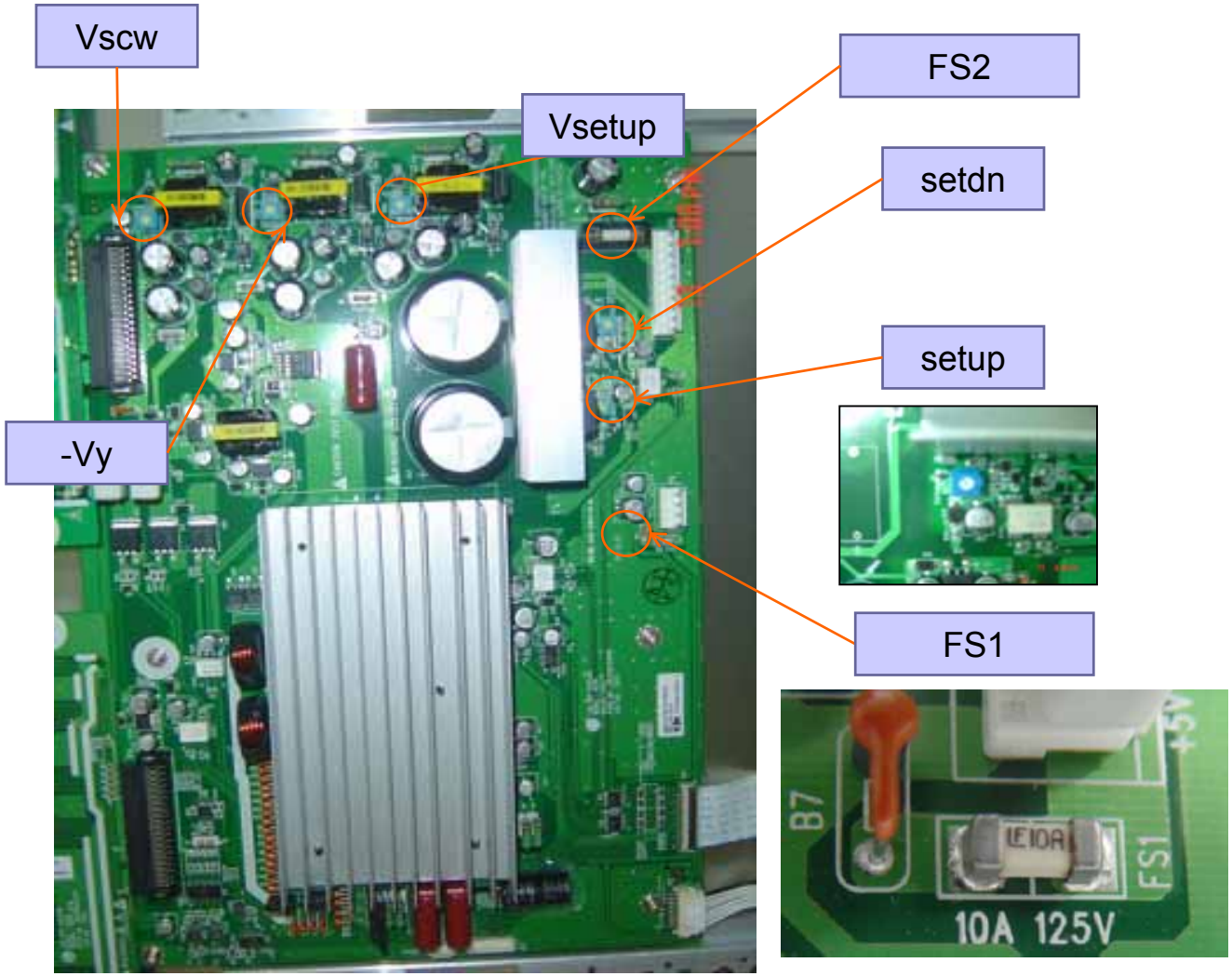
DMM – (GND)





5. Y-sus B/D

1. Check FUSE [FS1(5v) ,FS2(Vs)].
2. Check voltages(Vsetup,-Vy, Vscw)
3. Check DIODE between GND and Y SUS output.
   [SUSUP(OC2) SUSDN(OC1)].
   forward=0.4 ,reverse=OVERLOAD.
4. Check whether output voltages agrees
   with voltage that represented in label.

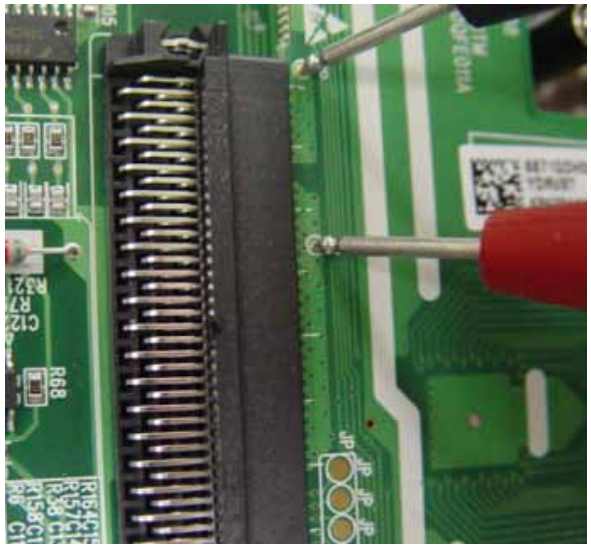


4. Trouble shooting.

■ Check whether output voltages agrees with voltage that represented in label.

■ Check diode value GND between Y-SUS output.

Normal diode value= 0.4 (forward)

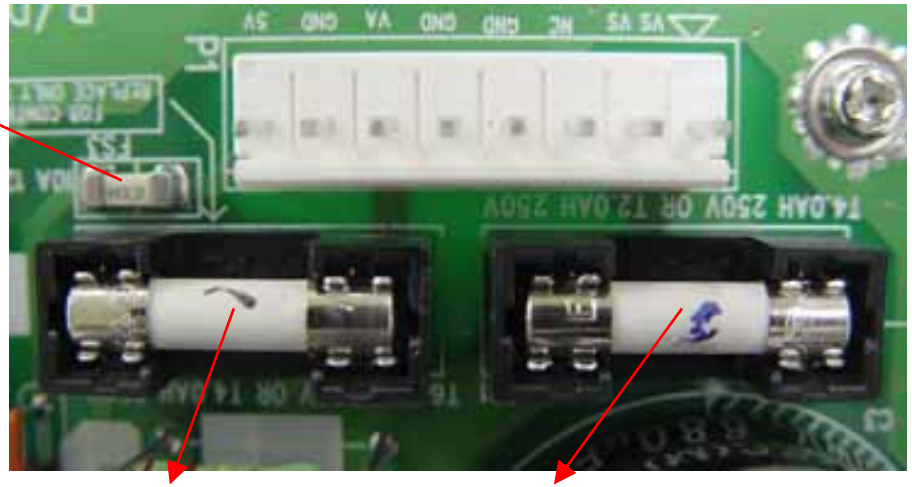


Normal diode value = OL (reverse)

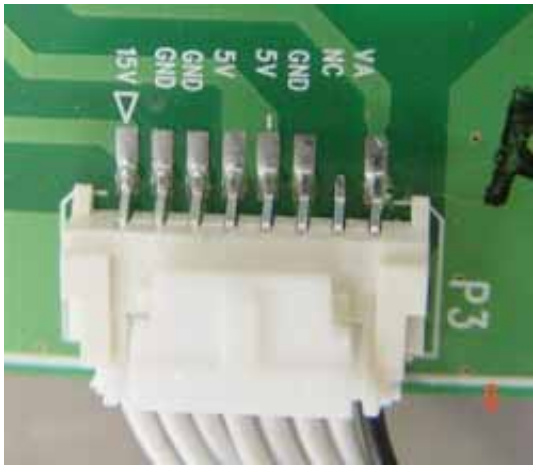
6. Z-sus B/D

1. Check the FUSE.
2. Check input voltages.(Va, 5V,15V)
3. Check FPC out put diode value.
4. Check ramp waveform.

■ Check the FUSE



■ Check input voltages



4. Trouble shooting.

■ Variable resistance of Z RAMP

waveform slope.

■ Check FPC output diode value.

caution: check certainly after removing FPC.

Normal diode value=0.375(forward)

Normal diode value=OVER LOAD(reverse)

4. Trouble shooting.

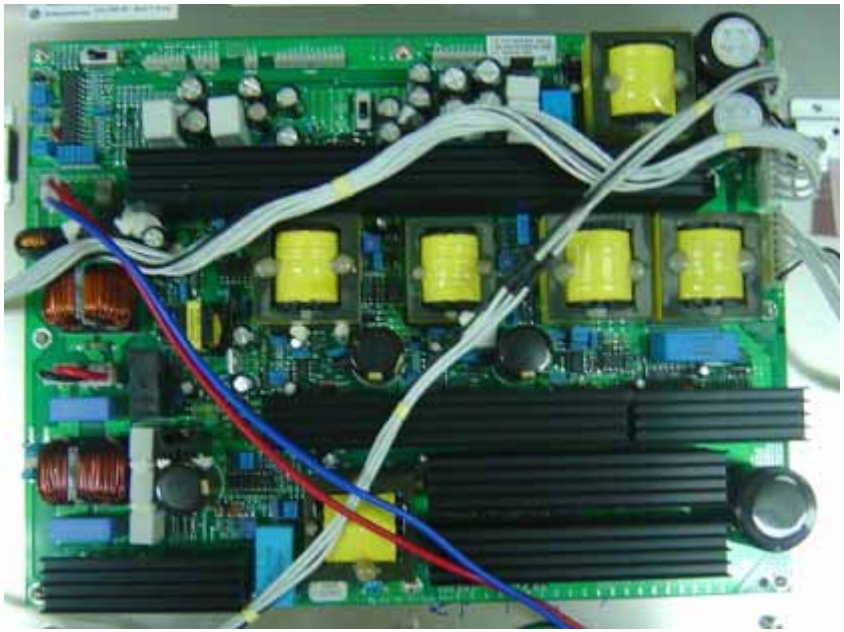
◎ Power protection

It is power protection when power is off automatically within 2~3 min. from power on.

Power protection function protect the boards when occurred short on circuits of PDP module or power problem.

If can not impress power even after replacing PSU, find out where the short occurred.

*** PSU makers.**



DAEGIL PSU

UNICON PSU

4. Trouble shooting.

Vertical defect (bar)

Check each section with following method if there is problem, replace or repair that part.

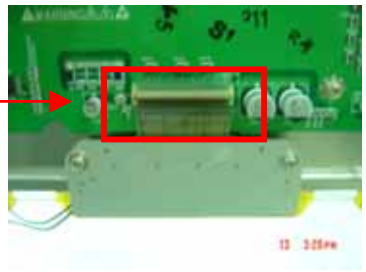
If not go to the next section.

1. Connector

Check COF connector.

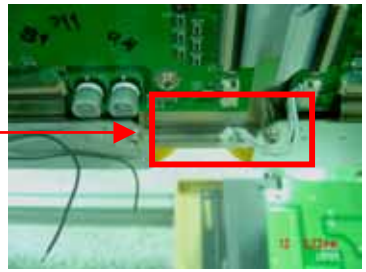
If not connected well,it will Make a bar defect .

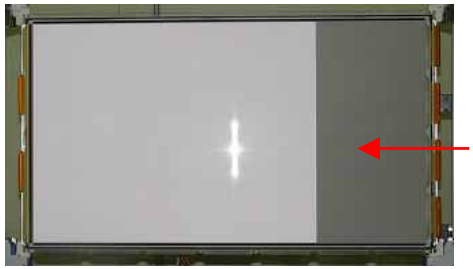
Check here



Bar

Check here



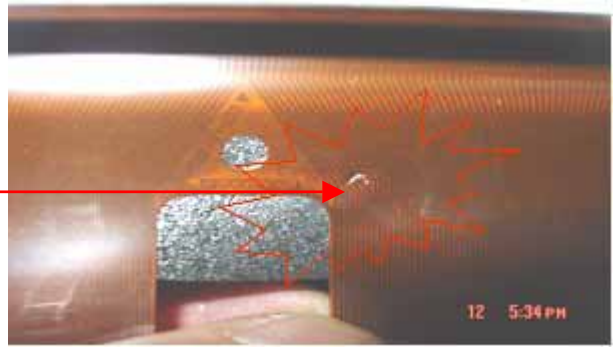


Off

2. Checking COF

Confirm whether COF was torn. And then check input of COF resistor and IC.

Tearing



COF 6 is torn partly

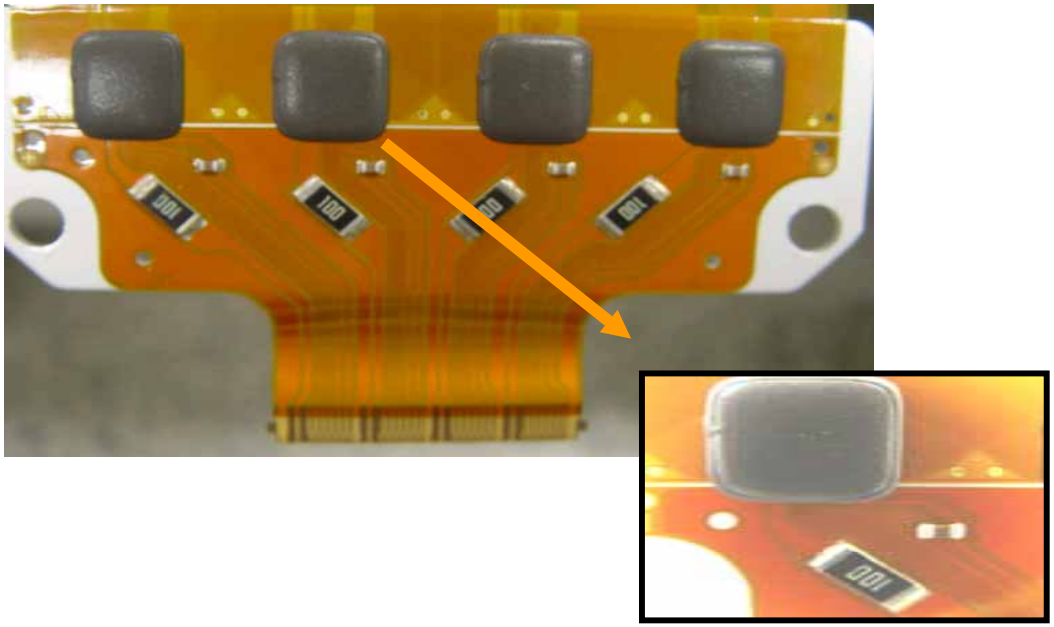
◎ Checking address COF input of resistor and IC

■ COF resistor checking

Check the both side of resistor With Digital multi meter(DMM) .

If the resistor is normal, the resistor value will be 10.2 ~ 10.8 Ω

But if not, the value will be 0 or infinity and replace the resistor.



4. Trouble shooting.

◎ Checking address COF input of resistor and IC

■ IC input checking

Inside of IC , there is 4 ea diodes which separated in 2 series .

(input 2, output 2)

*how to check

1.contact DMM - terminal to a right terminal of condenser(GND)

and DMM + terminal to a right terminal of IC, normal value 0.66 (fig.1)

2.contact DMM - terminal to Output terminal of resistor, and

DMM + terminal to a right terminal of IC , normal value 0.73 (fig.2)

Fig. 1

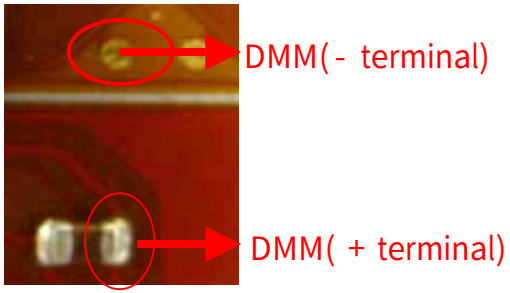
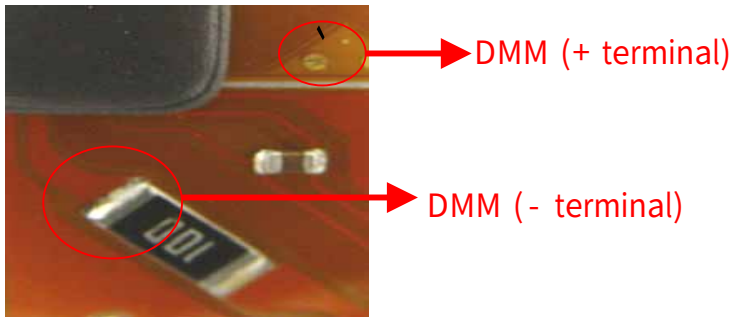


Fig. 2



3. Ctrl B/D

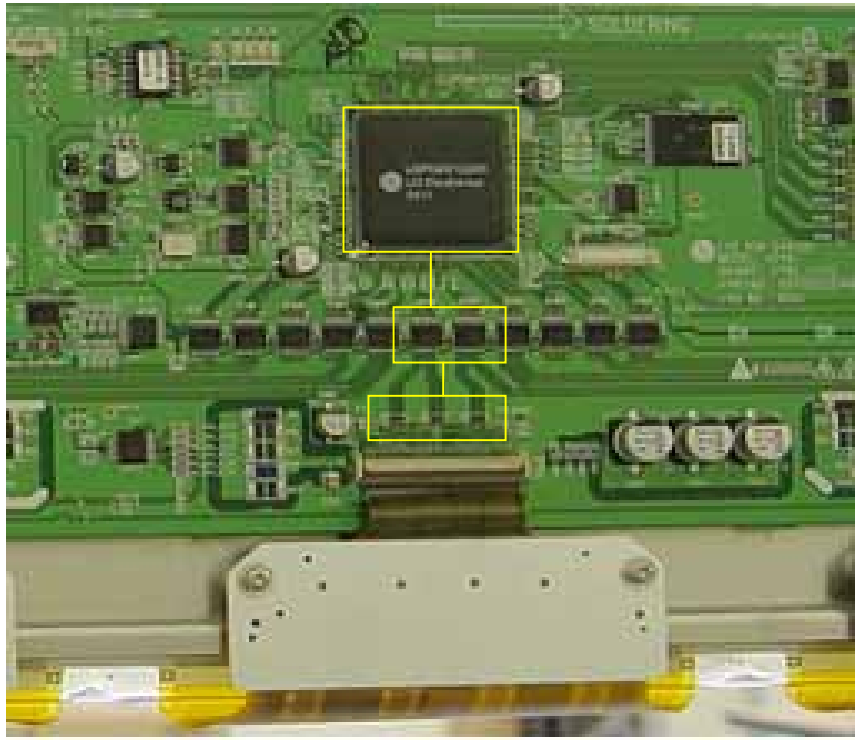
CTRL B/D supplies video signal to COF. So if there is a bar defect on screen,

It may be the ctrl b/d problem.

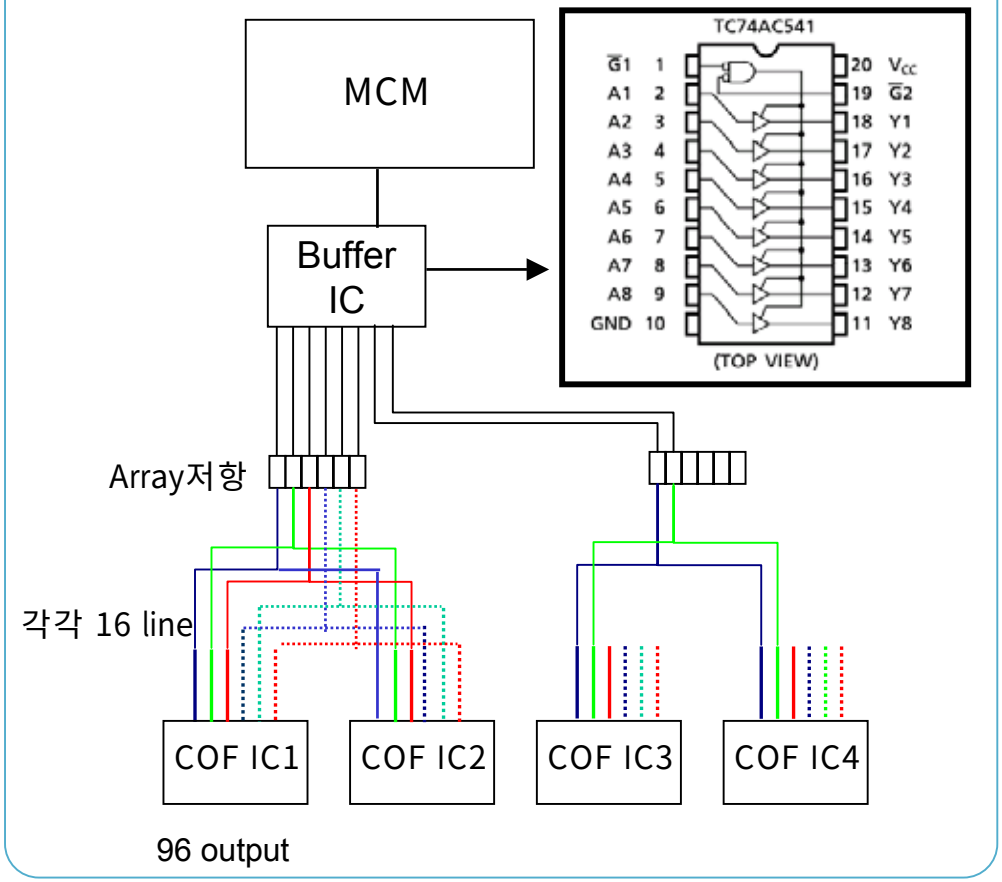
A flow of address signal

In this figure, we can easily suppose

what will be appeared on screen when a specific part failed.



<Diagram of ctrl b/d>



4. Trouble shooting.

Vertical defect (line)

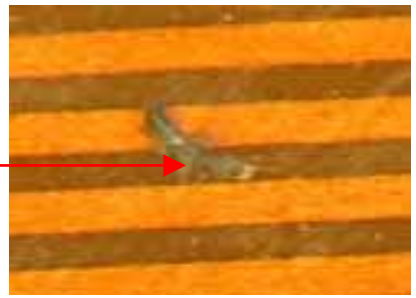
In case of 1 line open or short , check foreign substances in COF connector.

First blow up foreign substances with your mouth. And then if the same line appears, replace the panel.

1 line open or short

This phenomenon is due to COF IC inside short or adherence part of the Film and rear panel electrode problem.
In this case, replace the panel.

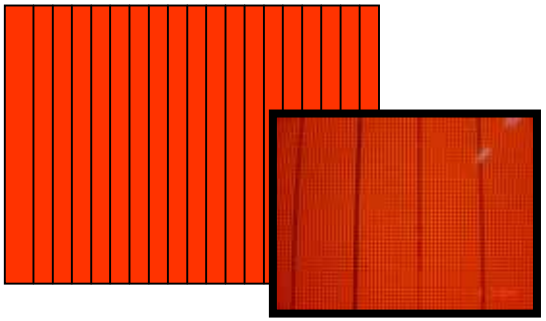
1 electrode open



1 line open

Line open or short with same distance.

This is MCM of Ctrl b/d defect. MCM can not be replaced separately. So replace the ctrl b/d.



MCM (Multi Chip Module)

4. Trouble shooting.

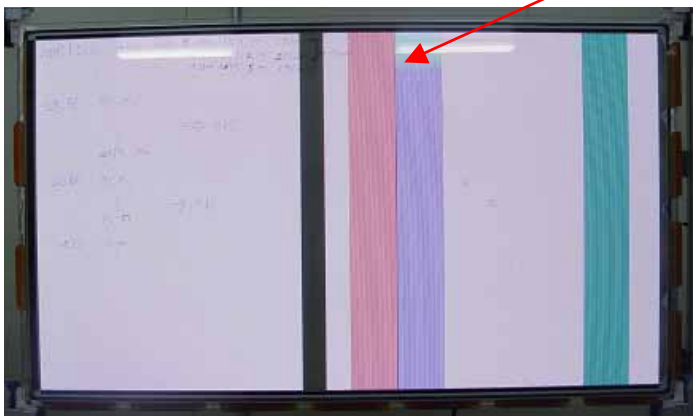
line defect from each parts

- **Case 1: Buffer IC fail**

COF IC 1,2 ⇒ 192 line(96+96) open.

COF IC 3,4 ⇒ 64 line open (with fixed interval there is on,off ……. Repetition)

16 line open



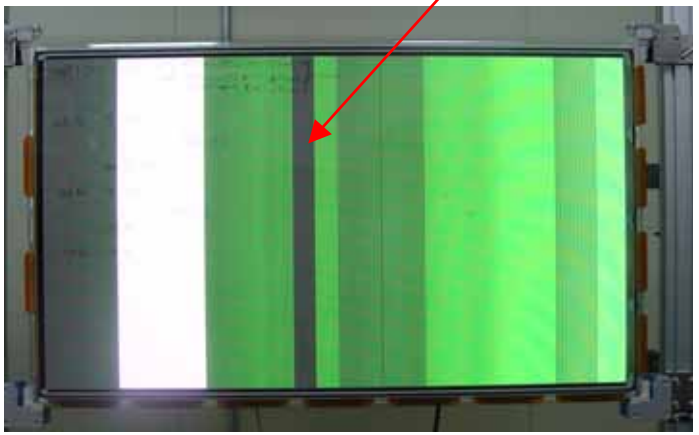
- **case 2 : Array resistor fail**

COF IC1 ⇒ 16 line , COF IC2 ⇒ 16 line open

- **case3 : COF IC fail**

96 line open.

96 line open



4. Trouble shooting.

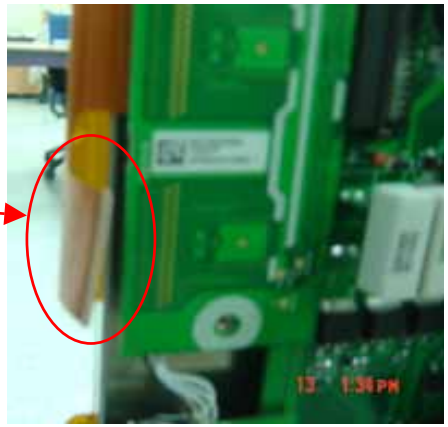
Horizontal (bar)

Most horizontal defects can be repaired. In case of adherence part of the Film and rear panel electrode defect or panel electrode open,short , replace the panel.

1. Connector

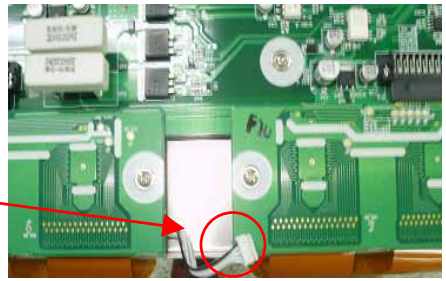
It can make a horizontal bar that connector on Y b/d and Z b/d did not plugged well. Because sustain voltage can not be supplied to panel. So check connectors (FPC, Y drv –Y drv) first.

Disconnected



Horizontal bar

Disconnected

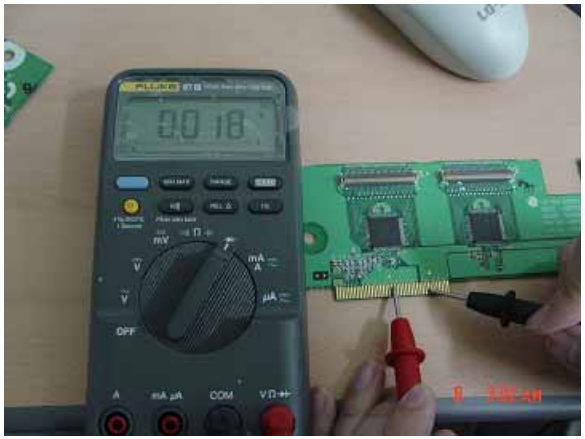


Screen off

2. Scan IC check

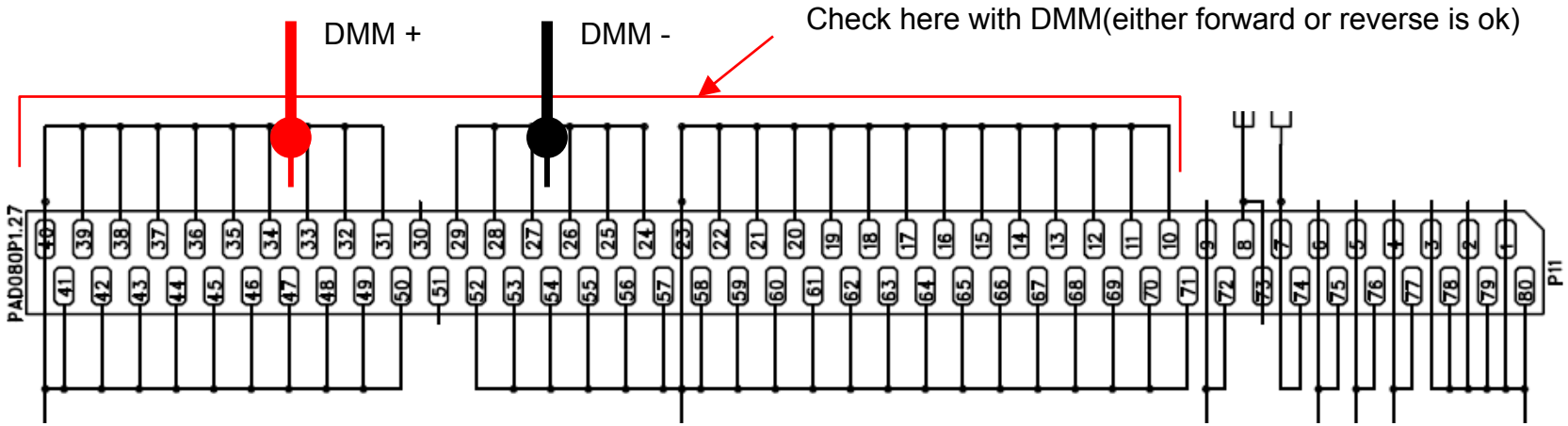
Check diode value of the right side part of output pin.

Normal diode value. (in case of Panasonic IC=1.035)



Defect diode value= 0.018

* It can be different from each IC Maker. (in case of TI IC= 0.6~0.7)



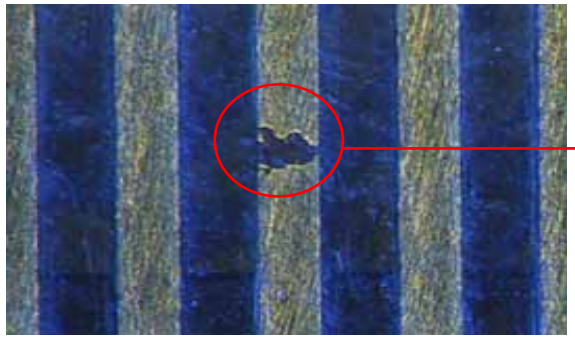
4. Trouble shooting.

Horizontal (line)

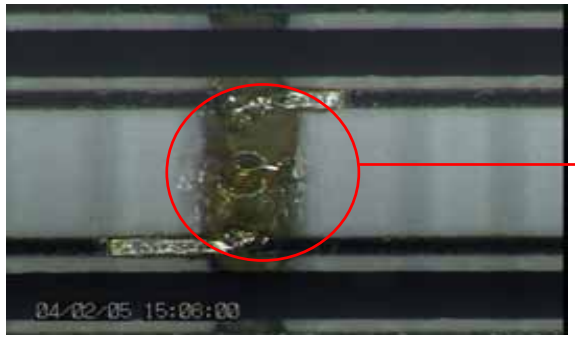
1. Check FPC

In case of horizontal 1 or more line, it is due to FPC or panel inside .

ctrl b/d, Y b/d is just normal.

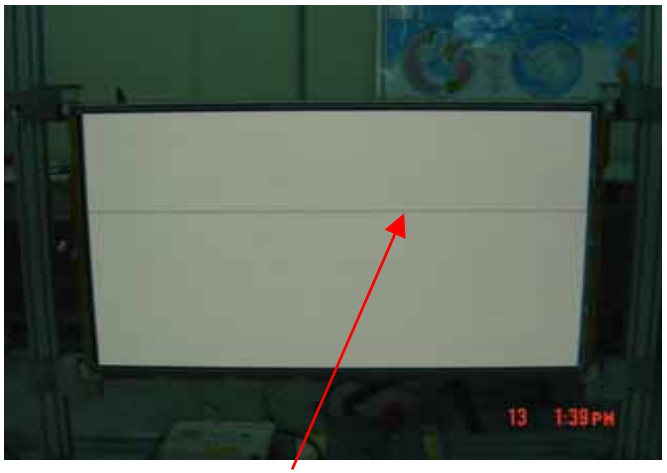


FPC electrode open



Panel electrode

Insulation break down



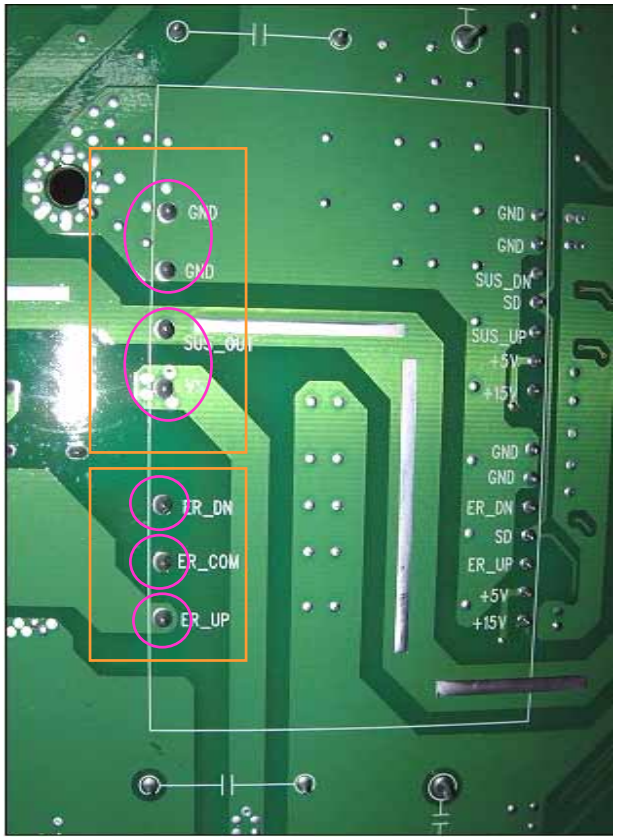
Horizontal 1 line.

2. Check scan IC

Check with same method that presented in Horizontal (bar).

4. Trouble shooting.

◎ How to check IPM



Forward : test 1 GND(＋) , Sus-out(－)
2 Sus-out(＋),Vs(－)
3 ER-DN(－),ER-COM(＋)
4 ER-COM(－),ER-UP(＋)

when each 4 TEST Diode value is over 0.4V => **OK**

Reverse : test 1 GND(－) , Sus-out(＋)
2 Sus-out(－),Vs(＋)
3 ER-DN(＋),ER-COM(－)
4 ER-COM(＋),ER-UP(－)

when each 4 nodes TEST Diode value is infinity => **OK**

※ Specially, the value of ER-UP,COM,DN in the Y/Z board, should be checked all of them. but, the terminal of Vs,Sus-out,GND, we must aware to know after check one of IPM because it is parallel.

→ **if no problems, check 15V(Y,Z B/D) with GND, ➔ Forward value 0.3V, Reverse value infinite. If no problems,**

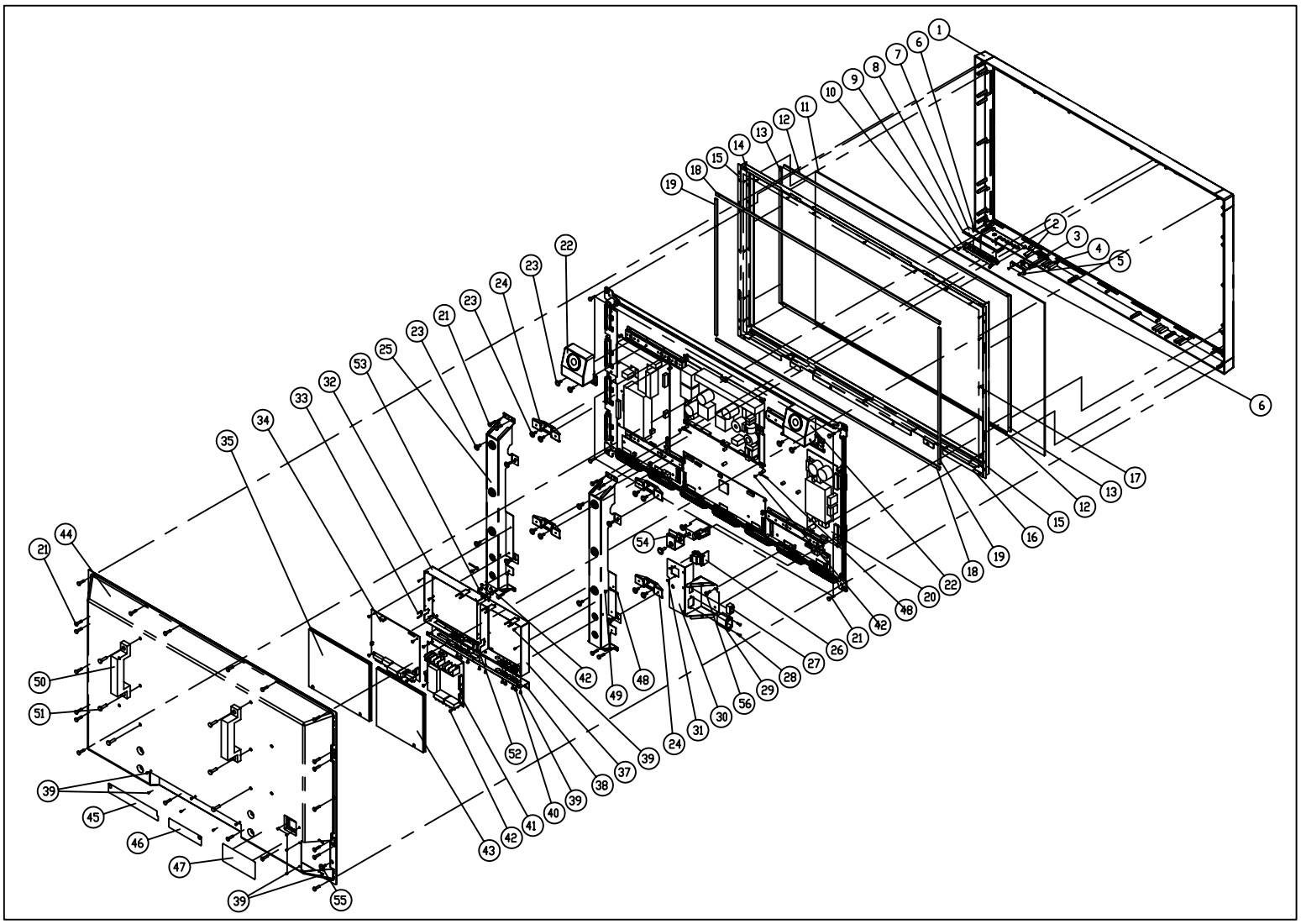
BOM Summry Report with Cost (Report For PDP4206EM)

Item	Component	Description/Country Origin	Unit	Quantity Summary
一. ElEC Parts				
1	E3403-004001	TUBE SUMITUBE D5.0 BLK 600V	M	0.3
2	E3421-926004	WIRE ASSY 1H2.5-2H2.5 L270 12P/2+	PCS	1
3	E3421-926006	WIRE ASSY TJC3-4Y/AMP-4Y/210 FOR S	PCS	1
4	E3421-926007	WIRE ASSY 1H2.5-2H2.5 L330 31P (LV	PCS	1
5	E4406-068001	FILTER EMI CTRC-0930-1B FOR 42	PCS	3
6	E4406-069001	FILTER EMI CTNF-100B FOR 4	PCS	1
7	E4850-003001	SPEAKER SUB(FOR 42TD1) 16 OHM	PCS	1
8	E4850-004001	SPEAKER SUB (FOR 42TD1) 16 OHM	PCS	1
9	E6205-001003	DISPLAY PDP LG-V6 42″ WITH FI	PCS	1
10	771-42D103-01	REMOTE RECEIVE PCB ASSY	PCS	1
11	771-42D102-01	SPK JACK PCB ASSY	PCS	1
12	771-42D101-01	KEY PCB ASSY	PCS	1
13	774P42D101-01	POWER ASSY PDP42	PCS	1
14	771E42D101-01	Main PCB	Sect	1
15	771L42D101-05	AUDIO PCB ASSY (LG/V6) W/O TUNER FOR USA	Sect	1
二. Mech Parts				
1	200-42D121-21A	FRONT CABINET BLACK ENG 42TD1 W/O TV	PCS	1
2	244-34B801-01	GIFT BOX HANDLE 34B8	PCS	2
3	248-46D201-01	HANDLE FOR PLASMA	PCS	2
4	263-42D101-01S	POWER LENS 42D1	PCS	1
5	269-42D101-01L	REMOTE LENS 42D1	PCS	1
6	326-050010-40	SPONGE CUSHION 500X10X4.0MM W/ADHESI	PCS	2
7	326-095010-40	SPONGE CUSHION 950X10X4.0MM W/ADHESI	PCS	2
8	361-101261-01	CABLE TIE	PCS	28
9	367-42D101-01	EDGE SADDLE 14MM 42D1	PCS	4
10	367-42D102-01	EDGE SADDLE 27MM 42D1	PCS	2
11	384-42D101-03	TUNER BOARD PLATE ENG 42TD1 W/O RF	PCS	1
12	384-42D102-01	PVC SHEET FOR MAIN BOARD 42D1	PCS	1
13	387-42D101-06H	MODEL PLATE AKAI ENG 42TD1(JIAYING)	PCS	1
14	388-42D102-01	PC SHEET FOR REMOTE PCB42D1 94V0 0.3	PCS	1
15	388-42D103-01H	CAUTION PLATE ENG 42D1 H	PCS	1
16	388-42SB02-01H	SPK PLATE MAIN SANSUI 42″ 42SB	PCS	1
17	388-42SB04-01H	POWER PLATE SANSUI 42SB	PCS	1
18	402-42D112-01	BACK COVER FOR V6 42D1	PCS	1
19	423-42D107-01	PANEL PATCH V6 42D1	PCS	4
20	423-42D108-01	PATCH FOR SHIELD BOX 42D1	PCS	1
21	423-42D10C-01	SUPPORT FOR PW BKT 42D1	PCS	1
22	423-42D10F-01	CONNECT SHEET 42D1	PCS	2
23	423-42D113-01	FILTER SUPPORT TOP 42D1	PCS	1
24	423-42D114-01	MAIN BKT FOR V6 42D1	PCS	2
25	423-42D115-01	POWER BKT FOR V5/V6 42D1	PCS	1

26	423-42D122-01	FILTER SUPPORT L&R 42D1	PCS	2
27	423-42SD21-01S	FILTER SUPPORT BOTTOM 42SD	PCS	1
28	430-42D101-01	HEATSINK FOR AUDIO IC 42D1	PCS	1
29	436-42D105-01	TERMINAL SHEET W/O RF HOLE	PCS	1
30	457-42D101-01	CLAMP ID=4.3MM L=46MM	PCS	7
31	481-42D111-01	SHIELD BOX FOR MAIN PCB JIAYING	PCS	1
32	481-42D112-01	SHIELD BOX FOR TUNER PCB JIAYING	PCS	1
33	483-42D101-01	SHIELD COVER A 42D1	PCS	1
34	483-42D102-01	SHIELD COVER B 42D1	PCS	1
35	512-42D101-01	SHEET 1160X1160 42D1	PCS	0.2857
36	512-42D102-01	SHEET 1160X1480 42D1	PCS	0.2857
37	553-002007-40A	SHIELD GASKET 20X7X4.0MM W/CONDUCTIV	PCS	4
38	553-002509-25A	SHIELD GASKET 25X9X2.5MM W/CONDUCTIV	PCS	2
39	553-004009-40A	SHIELD GASKET 40X9X4.0MM W/CONDUCTIV	PCS	1
40	553-005009-25A	SHIELD GASKET 50X9X2.5MM W/CONDUCTIV	PCS	1
41	553-012509-40A	SHIELD GASKET 125X9X4.0MM W/CONDUCTI	PCS	11
42	553-017009-25A	SHIELD GASKET 170X9X2.5	PCS	2
43	553-020009-40A	SHIELD GASKET 200X9X4.0MM W/CONDUCTI	PCS	4
44	553-024509-40A	SHIELD GASKET 245X9X4.0MM W/CONDUCTI	PCS	2
45	553-056009-40A	SHIELD GASKET 560X9X4.0 W/CONDUCTIVE	PCS	2
46	553-095009-40A	SHIELD GASKET 950X9X4.0 W/CONDUCTIVE	PCS	2
47	554-080030-01	SHIELD CLOTH 80X30MM W/CONDUCTIVE AD	PCS	2.5
48	563-119-	SERIAL NO. LABEL	PCS	1
49	568-P46T02-02	WARNING LB ENG 42SF NIL	PCS	1
50	579-42D102-09	SERIAL NO/BAR CODE LABEL 42D1	PCS	1
51	579-42D102-14	BAR CODE LABEL AKAI PD4206EM(USA)	PCS	2
52	579-42D103-02	ON/OFF LB ENG 42D1 NIL	PCS	1
53	579-42D105-01	PROTECTIVE EARTH LABEL FOR ESA 42TD1	PCS	1
54	590-42D101-06	WARRANTY CARD AKAI PDP4206EM(USA)	PCS	1
55	600-305008-00	MACH.SCREW PAN 3X8 BZN +	PCS	2
56	601-305008-00	MACH.SCREW CTS 3X8 BZN +	PCS	2
57	602-305006-10	MACH.SCREW WHR 3X6 NIP +	PCS	17
58	604-305005-30	MACH.SCREW BID 3X5 BNI +	PCS	22
59	604-601020-00	MACHINE SCREW BINDING M6X1.0PX20MM B	PCS	6
60	60D-407010-40	MACH. SCREW W/SPRING WASHER M4.0X0.7	PCS	21
61	610-300210-00	S-TAP.SCREW RND 3X10 A BZN +	PCS	2
62	612-300210-00	S-TAP.SCREW WHR 3X10 A BZN +	PCS	7
63	614-260208-10	S-TAP.SCREW BID 2.6X8 A NIP +	PCS	2
64	614-400408-10	S-TAP.SCREW BID 4X8 D NIP +	PCS	2
65	614-400412-00	S-TAP.SCREW BID 4X12 T BZN +	PCS	34
66	615-400214-00	SELF-TAPPING SCREW W/BIG WASHER	PCS	1
67	619-300210-10	SPECIAL SCREW 3X10 NP ″+″	PCS	23
68	900-42D103-01	PANEL DISPLAY FILTER OPTIMAX	PCS	1
三. Packing				
1	300-42D111-02C	POLYFOAM FOR MAIN UNIT 42D1 TOP	PCS	1
2	300-42D112-02C	POLYFOAM FOR MAIN UNIT 42D1 BOTTOM	PCS	1
3	310-504004-01	POLYBAG EPF 50″X40″X0.04	PCS	1

4	510-42D104-01K	GIFT BOX AKAI 1154(W)X320(D)X1032(H)	PCS	1
5	511-42D101-01K	CARTON BOX FOR BTM 42D1	PCS	1
四.ACCESSORY				
1	511-42D102-01A	ACCESSORY BOX	PCS	1
2	790-003603-A9	AKAI Remote 0036 for PDP4206EM	PCS	1
3	580-42D101-11	INSTRUCTION BOOKLET E FOR AKAI PDP42	PCS	1
4	310-111404-07V	POLYBAG 11″X14″X0.04	PCS	1
5	E3404-157001	AC CORD UL 1.88M MET-4D7+SJT 16AWG/	PCS	1
6	E7301-010002	BATTERY AAA R03P1.5V <2>	PCS	2
7	734-BM0305-01	SECC STAND BASE 42″ B/G BOX W/O POLY	SET	1

Exploded View



56	614-400412-00	SCREW 4x12	1	
55	615-400412-00	SCREW 4x14	1	
54	423-42D10C-01	SUPPORT FOR PW BKT	1	
53	423-42D108-01	PATCH FOR SHIELD BOX	1	
52	367-42D102-01	EDGE SADDLE 27MM	2	
51	604-601020-00	MACH.SCREW M6x20	4	
50	248-P46U02-01	HANDLE	2	
49	622-302408-10	STP SCREW 3x8	2	
48	23845857	CLAMP	4	
47	560-42D101-01	MODEL PLATE	1	
46	384-42D102-01	PVC SHEET FOR TUNER BOARD	1	
45	384-42D101-01	PVC SHEET FOR MAIN BOARD	1	
44	402-42D10X-01	VACK COVER	1	
43	483-42D102-01	SHIELD COVER B	1	
42	602-305006-10	MACH. SCREW 3x6	14	
41	E7801-043004	TUNER BOARD	1	
40	612-300210-00	STP SCREW 3x10	7	
39	604-305005-630	MACH. SCREW 3x5	22	
38	436-42D101-01	BAK TERMINAL SHEET	1	
37	481-42D102-01	SHIELD BOX B	1	
36				
35	483-42D101-01	SHIELD COVER A	1	
34	E7801-043006	MAIN BOARD	1	
33	367-42D101-01	EDGE SADDLE 14MM	4	
32	481-42D101-01	SHIELD BOX A	1	
31	614-300210-00	STP SCREW 3x10	2	
30	423-42D115-01	POWER BKT FOR V5/V6	1	
29	E4405-035001	AC LINE FILTER	1	
28	601-306008-10	MACH. SCREW 3x8	2	
27	E4101-027001	POWER SWITCH	1	
26	771-42D102-01	AV JACK PCB	1	
25	423-42D114-01	MAIN BKT FOR V6/FORMOSA	2	
24	423-42D107-01	PANEL PATCH FOR V6	4	
23	60D-407010-10	MACH. SCREW W/SP WASHER 4x10	20	
22	E4850-002001	SPK BOX	1	
21	614-400416-00	STP SCREW 4x16	33	
20	E6205-001003	PLASMAS PANEL	1	
19	322-501004-01	CUSHION 500x10x4MM	2	
18	322-951004-01	CUSHION 950x10x4MM	2	
17	610-300210-10	STP SCREW 3x10	22	
16	423-42D101-01	FILTER SUPPORT BTM	1	
15	423-42D102-01	FILTER SUPPORT L&R	2	
14	423-42D103-01	FILTER SUPPORT TOP	1	
13	559-500925-01	SHIELD GASKET 500x9x2.5MM	2	
12	559-950925-01	SHIELD GASKET 950x9x2.5MM	2	
11	900-42D101-01	DISPLAY FILTER LG	1	
10	614-400480-10	STP SCREW 4x8	2	
9	277-42D101-XXS	FUNCTION KNOG	5	
8	771-42D101-01	KEY PCB	1	
7	388-42D101-01	PC SHEET FOR KEY PCB	1	
6	614-260208-10	STP SCREW 2.6x8	5	
5	388-42D102-01	PC SHEET FOR REMOTE PCB	1	
4	771-42D103-01	REMOTE PCB	1	
3	269-42D101-01L	REMOTE LENS	1	
2	263-42D101-01S	POWER LEN	1	
1	200-42D101-XXS	FRONT CABINET	1	
ITEM	PART NO.	DESCRIPTION	QTY	REMARK

If you forget your V-Chip Password

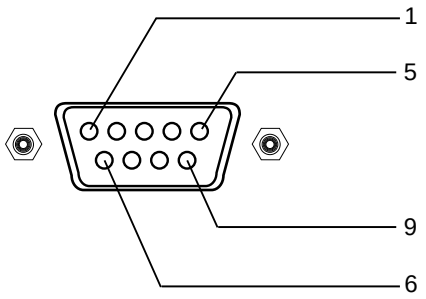
- Omnipotence V-Chip Password: **363200**.
- Press **MENU Right** button.
- Press **CH+, CH-** or **Up, Down** buttons to highlight "CC-VChip" Control.
- Press **MENU Right** and **Up, Down** buttons to highlight "Change Blocking Password".
- Press **Right** button to pop up "Old Password".
- Use the **Number buttons** (0~9) to enter an omnipotence Password.
- Press **Right** button to confirm and will pop up "Password Change Successful".
- Suggest: Change to your familiar Password again.

Software upgrade

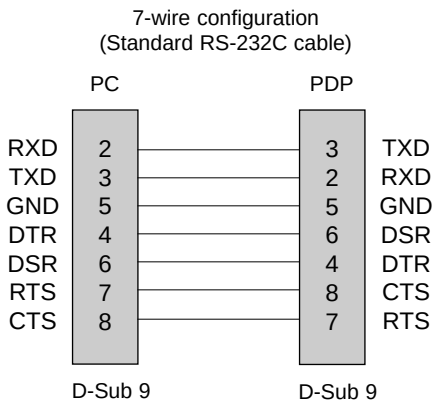
- Connect the RS-232C input jack to an external control device (such as a computer) and software upgrade.

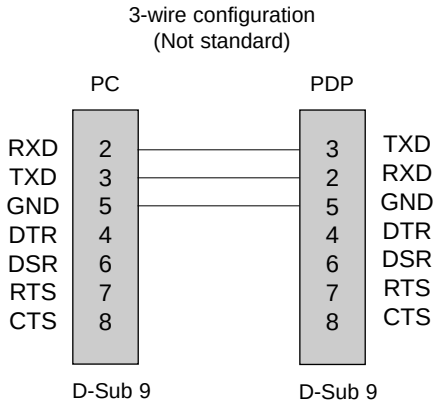
Type of connector; D-Sub 9-pin male

No.	Pin name
1	No connection
2	RXD (Receive data)
3	TXD (Transmit data)
4	DTR (DTE side ready)
5	GND
6	DSR (DCE side ready)
7	RTS (Ready to send)
8	CTS (Clear to send)
9	No Connection



RS-232C configurations





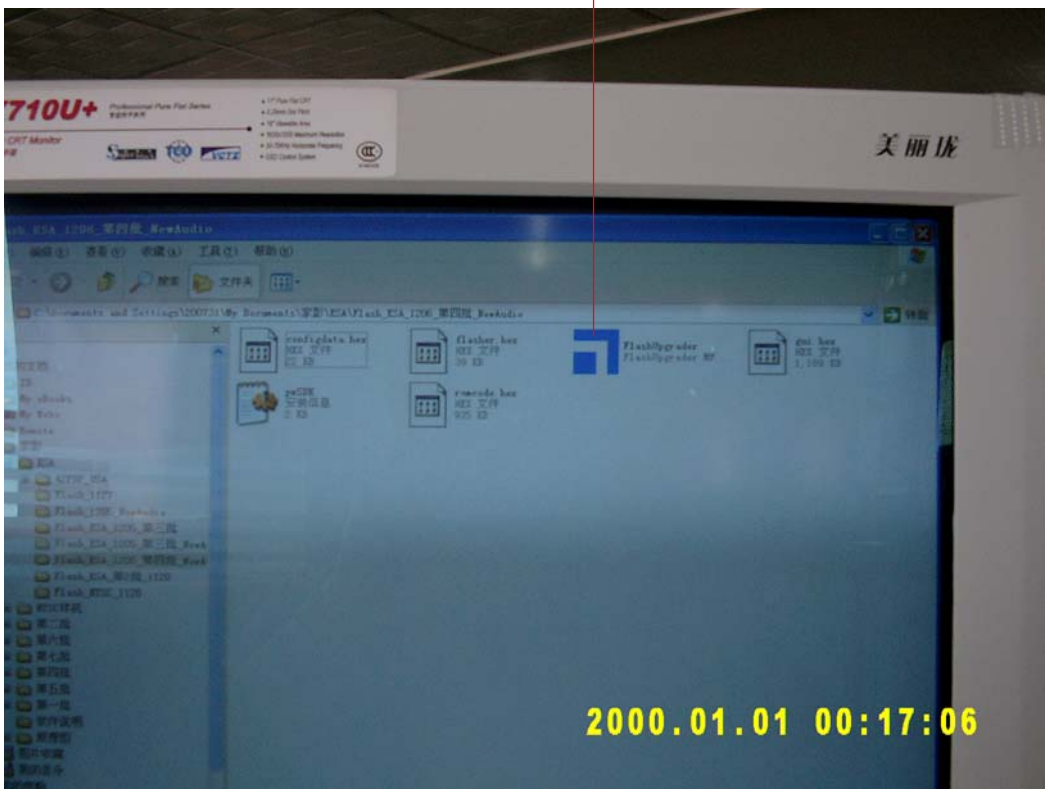
Software upgrade Process

- Power Switch OFF.
- Connect the RS-232 jack of the computer to the RS-232 jack on the plasma back panel. RS-232C connection cables are not supplied with the Plasma.

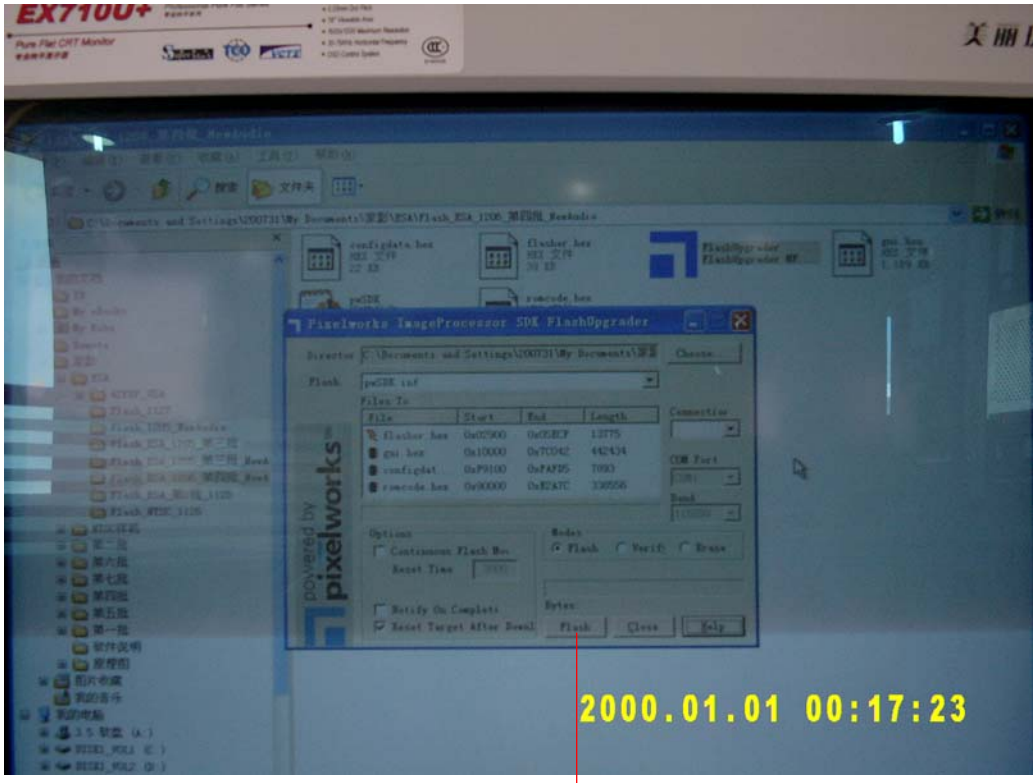
Computer
RS-232

PDP
RS-232

- Power Switch ON. The power indicator on the front of the panel should now display red, that the Plasma is in standby mode.
- Copy the software (Flash Upgrader) to the computer.
- Open the software (Flash Upgrader.exe)

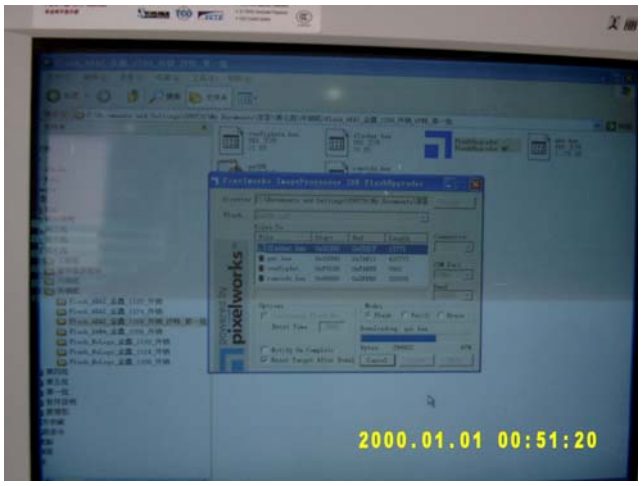


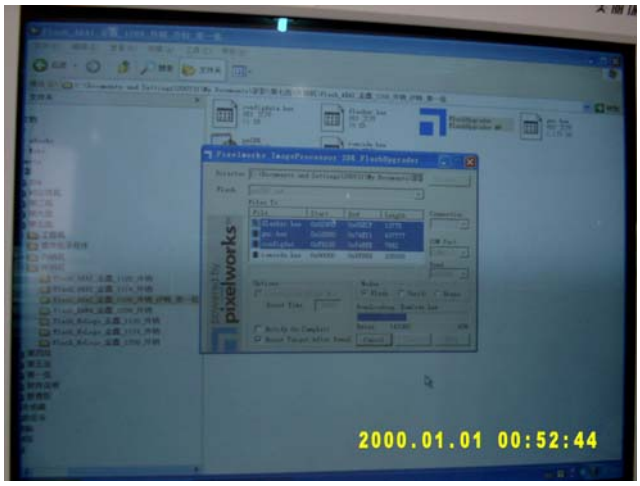
- Point "Flash" on the interface of the Flash Upgrader.exe.



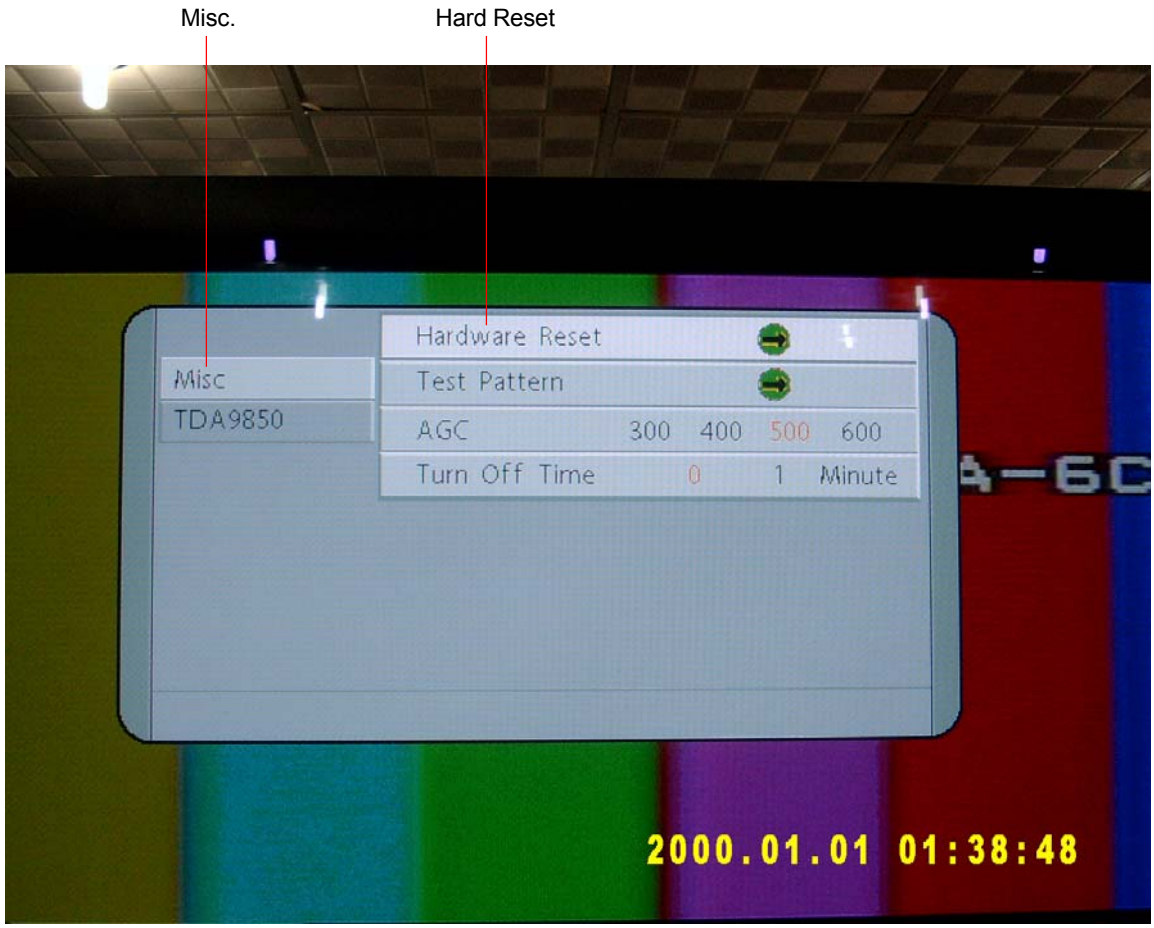
Flash

- Press STANDBY button on the front panel or POWER button of Remote control, Power indicator is green, the Plasma is in power ON mode, software start upgrader immediately.





- **Hard Reset** after the upgrader is finished.
  Method: 1. Power Switch Off
  2. Power Switch On again
  3. Sequence press **F.WHITE, VIDEO, I.P.C.** button on the Remote control enter **factory Menu** select "**Misc.**", "**Hard Reset**", press **Menu Right** button to **Hard Reset** is finished.
  4. If the color of picture is abnormal, **Hard Reset** again.



- After the **Hard Reset** is finished, shut down the power switch, take out the RS-232C connection cables after the power indicator is extinguished.

Note: The computer and plasma must be keep **Power ON** in the software upgrade processing.
If the function is abnormal, **software upgrade** again.